

# **18 and 28 Series**

*Compact And Standard  
Modular Air Preparation Systems*

*Catalog 9CW-HW-225*



**WILKERSON®**

# WILKERSON®

First incorporated in August of 1948, Wilkerson manufactures a complete line of compressed air treatment and control products to meet a wide variety of industrial, process, consumer and health care applications. Today, Wilkerson serves over 500 different industries throughout the world.

Over the years, Wilkerson facilities, manufacturing and engineering technology have kept pace with increased sales volume, the growing need to satisfy customers' specific requirements and the demands placed on production.

Wilkerson's growing leadership in the industry is due to our determined commitment to quality; quality of products, services and people.

Our dedication to the total quality management process assures our customers that we can consistently provide the highest levels of product quality and customer service required to meet their needs.

From the very beginning, Wilkerson has sold its products through a world-wide, independent distributor network. We currently have 200 distributors throughout North America, plus an expanding network of international distributors in over 40 countries. Our distributors, who have many years of experience in compressed air treatment and control, offer excellent product knowledge, technical assistance and local inventory. As a result of representing other

complimentary products, they are able to satisfy their customers' total requirements.

Today's broad line of Wilkerson products is the result of continuing product innovations and technology advancements which frequently become industry standards. Wilkerson is dedicated to designing and manufacturing innovative products with features and operating characteristics that meet customer requirements for quality, performance, reliability, serviceability, safety and value.

## **WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

## **Offer of Sale**

The items described in this document are hereby offered for sale by The Company, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated on the separate page of this document "Offer of Sale".

Compact Modular 18 & 28 Series ..... 2-4

Compact Modular 18 & 28 Series Accessories & Options .....5

Compact Modular 18 Series Dimensions.....6

Compact Modular 18 Series Specifications & Ordering Data ..... 7-8

Compact Modular 18 Series Flow Charts .....9

Standard Modular 28 Series Dimensions.....10

Standard Modular 28 Series Specifications & Ordering Data..... 11-12

Standard Modular 28 Series Flow Charts .....13

Total Systems Approach.....14

Safety Guidelines ..... 15-16

Offer of Sale .....17

# COMPACT MODULAR 18 AND STANDARD MODULAR 28 SERIES



F18



F28

## Filters

The F18 Compact and F28 Standard particulate filters include a standard 5-micron element, quick-disconnect integral plastic bowl with bowl guard, and manual pipe-away type drain. A metal bowl option is also available. Filters meet or exceed ISO Class 3 for maximum particle size and concentration for solid contaminants.\*

## Lubricators

The L18 Compact and L28 Standard lubricators feature an integral clear sight dome and adjustment knob for quick setting of the lubrication rate. The L18 and L28 can also be replenished with oil while under pressure.



L18



L28



M18



M28

## Coalescing Filters

The M18 Compact and M28 Standard coalescing filters provide high efficiency removal of water and oil aerosols, and solid particulate contaminants down to 0.01 micron with minimum pressure drop. All M18 and M28 filters come standard with a mechanical differential pressure indicator. Wilkerson M Series filters exceed ISO Class 1 for particulates and meet or exceed Class 1 for maximum oil content.\* Wilkerson offers other types of elements to meet your performance and air quality requirements.

\*ISO 8573-1:1991(E)

# COMPACT MODULAR 18 AND STANDARD MODULAR 28 SERIES



R18



R28

## Filter / Regulators

The B18 Compact and B28 Standard integral filter / regulator air sets combine all the advanced features and functions of the standard filter and regulator into a single, space saving, high performance unit.

## Regulators

The R18 Compact and R28 Standard Regulators feature a balanced valve for superior regulation characteristics. Two gauge ports, and a bottom plug for ease of maintenance serviceability are standard.



B18



B28



D18

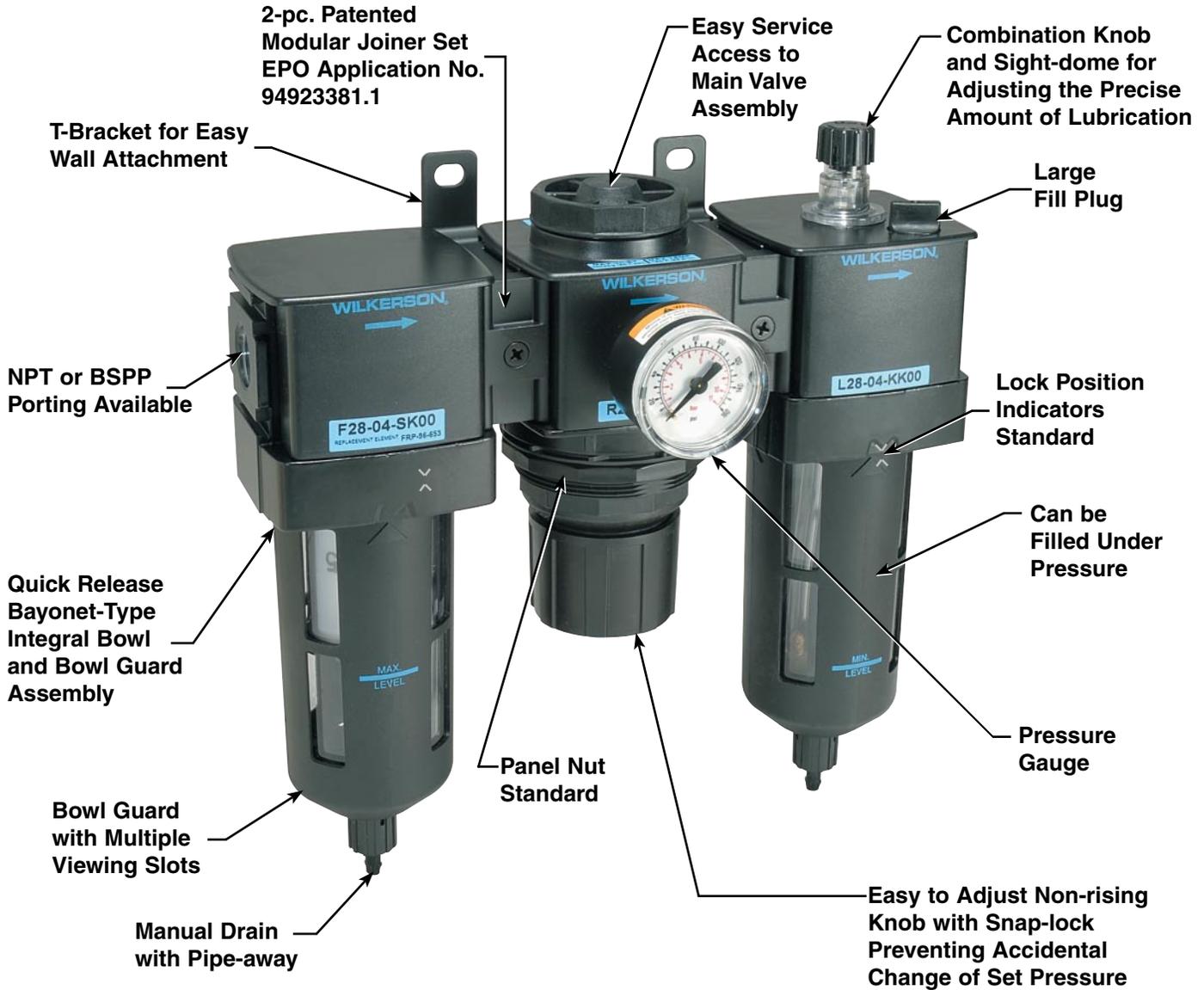


D28

## Filter / Regulator – Lubricator Combinations

The D18 Compact and D28 Standard modular combination models bring together all the superior features and functions of the 18 and 28 Series modular FRL product line into a compact, space-saving assembly. Patented joiner set with T-bracket is standard.

# COMPACT MODULAR 18 AND STANDARD MODULAR 28 SERIES



C28 SHOWN

## Filter / Regulator / Lubricator Combination Units

The C18 and C28 modular FRL combination models integrate components of the advanced 18 and 28 product lines into a compact, lightweight, ready-to-mount assembly. The units come standard with pressure gauge

and are pre-assembled utilizing our patented modular T-bracket / joiner assembly for easy installation and mounting.

# COMPACT MODULAR 18 AND 28 SERIES

## ACCESSORIES AND OPTIONS



### Diverter Blocks

For increased design flexibility, the N18 diverter block is available in 1/2" threaded inlet/outlet ports. The N28 has 3/4" threaded inlet/outlet ports. The diverter block can be mounted anywhere in the FRL system. The unit comes with two 1/4", 3/8" or 1/2" threaded auxiliary ports. The N18 and N28 models are also available with or without a check valve.



### Safety Lockout Valves

The V18 and V28 safety lockout valves are manually operated slide-type 3-way valves. In the closed position, downstream air is exhausted to atmosphere. The valve slides can be locked in the closed position with a customer-supplied padlock. (Meets OSHA Reg 29 CFR Part 1910) Right to left flow models V19 and V29 are also available.



### Gauges

Easy-to-read 1-1/2" faces with dual psi/bar scales make this an important accessory. Gauges come 0-30, 0-60, 0-160 and 0-300 psig ranges, 1/4" center back mounted. The 18 and 28 Series use the same gauges.



### Metal Bowls & Automatic Drains

The 18 and 28 Series both have an optional metal bowl with liquid level sight gauge and an automatic mechanical drain to meet your application needs.



### Modular Brackets & Joiner Assembly

A wide choice of unit mounting brackets and joiner assembly allow for easy unit installation, assembly and mounting. Patented joiner assembly makes a reliable, leak-free assembly. The 18 and 28 Series use the same joiner assembly. (EPO Application Number 94923381.1)

### Modular T-Bracket, Type L-Bracket, & Type C-Bracket

A wide choice of unit mounting brackets and joiner assembly allow for easy unit installation, assembly, and mounting.



# COMPACT MODULAR 18 SERIES

## SPECIFICATIONS AND ORDERING DATA

| Model No.       | Description                | Pipe Size<br>G | Flow<br>dm <sup>3</sup> /s | Max.<br>Pressure<br>bar | Max.<br>Max.<br>Temp °C | Bowl<br>Capacity<br>cm <sup>3</sup> | Height<br>mm | Width<br>mm | Depth<br>mm | Weight<br>kg. |
|-----------------|----------------------------|----------------|----------------------------|-------------------------|-------------------------|-------------------------------------|--------------|-------------|-------------|---------------|
| <b>FILTERS*</b> |                            |                |                            |                         |                         |                                     |              |             |             |               |
| F18-C2-SK00     | Manual Drain               | 1/4            | 47                         | 10                      | 50                      | 51                                  | 188          | 60          | 60          | 0.5           |
| F18-C3-SK00     | Manual Drain               | 3/8            | 50                         | 10                      | 50                      | 51                                  | 188          | 60          | 60          | 0.5           |
| F18-C4-SK00     | Manual Drain               | 1/2            | 57                         | 10                      | 50                      | 51                                  | 188          | 60          | 60          | 0.5           |
| F18-C2-SG00     | Automatic Mechanical Drain | 1/4            | 47                         | 10                      | 50                      | 51                                  | 188          | 60          | 60          | 0.5           |
| F18-C3-SG00     | Automatic Mechanical Drain | 3/8            | 50                         | 10                      | 50                      | 51                                  | 188          | 60          | 60          | 0.5           |
| F18-C4-SG00     | Automatic Mechanical Drain | 1/2            | 57                         | 10                      | 50                      | 51                                  | 188          | 60          | 60          | 0.5           |

|                            |   |     |    |    |    |    |     |    |    |     |
|----------------------------|---|-----|----|----|----|----|-----|----|----|-----|
| <b>COALESCING FILTERS*</b> |   |     |    |    |    |    |     |    |    |     |
| M18-C2-CK00                | Coalescing / Manual Drain               | 1/4 | 24 | 10 | 50 | 51 | 208 | 60 | 60 | 0.5 |
| M18-C3-CK00                | Coalescing / Manual Drain               | 3/8 | 28 | 10 | 50 | 51 | 208 | 60 | 60 | 0.5 |
| M18-C4-CK00                | Coalescing / Manual Drain               | 1/2 | 32 | 10 | 50 | 51 | 208 | 60 | 60 | 0.5 |
| M18-C2-CG00                | Coalescing / Automatic Mechanical Drain | 1/4 | 24 | 10 | 50 | 51 | 208 | 60 | 60 | 0.5 |
| M18-C3-CG00                | Coalescing / Automatic Mechanical Drain | 3/8 | 28 | 10 | 50 | 51 | 208 | 60 | 60 | 0.5 |
| M18-C4-CG00                | Coalescing / Automatic Mechanical Drain | 1/2 | 32 | 10 | 50 | 51 | 208 | 60 | 60 | 0.5 |

|                    |                               |     |    |    |    |   |     |    |    |     |
|--------------------|-------------------------------|-----|----|----|----|---|-----|----|----|-----|
| <b>REGULATORS*</b> |                               |     |    |    |    |   |     |    |    |     |
| R18-C2-F000        | Relieving                     | 1/4 | 39 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C2-F0G0        | Relieving / Gauge 0-11 bar    | 1/4 | 39 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C3-F000        | Relieving                     | 3/8 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C3-F0G0        | Relieving / Gauge 0-11 bar    | 3/8 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C4-F000        | Relieving                     | 1/2 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C4-F0G0        | Relieving / Gauge 0-11 bar    | 1/2 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C2-R000        | Nonrelieving                  | 1/4 | 39 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C2-R0G0        | Nonrelieving / Gauge 0-11 bar | 1/4 | 39 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C3-R000        | Nonrelieving                  | 3/8 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C3-R0G0        | Nonrelieving / Gauge 0-11 bar | 3/8 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C4-R000        | Nonrelieving                  | 1/2 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |
| R18-C4-R0G0        | Nonrelieving / Gauge 0-11 bar | 1/2 | 46 | 21 | 80 | — | 137 | 60 | 60 | 0.5 |

|                     |              |     |    |    |    |       |     |    |    |     |
|---------------------|--------------|-----|----|----|----|-------|-----|----|----|-----|
| <b>LUBRICATORS*</b> |              |     |    |    |    |       |     |    |    |     |
| L18-C2-KK00         | Manual Drain | 1/4 | 42 | 10 | 50 | 121.0 | 212 | 60 | 60 | 0.5 |
| L18-C3-KK00         | Manual Drain | 3/8 | 43 | 10 | 50 | 121.0 | 212 | 60 | 60 | 0.5 |
| L18-C4-KK00         | Manual Drain | 1/2 | 45 | 10 | 50 | 121.0 | 212 | 60 | 60 | 0.5 |

For no drain use C in 7th position XXX-XX-XXCX

|                             |  |     |    |    |    |    |     |    |    |     |
|-----------------------------|--|-----|----|----|----|----|-----|----|----|-----|
| <b>FILTER / REGULATORS*</b> |  |     |    |    |    |    |     |    |    |     |
| B18-C2-FK00                 | Relieving                                | 1/4 | 42 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C2-FKG0                 | Relieving / Gauge 0-11 bar               | 1/4 | 42 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C2-FGG0                 | Relieving / Auto. Drain / Gauge 0-11 bar | 1/4 | 42 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C3-FK00                 | Relieving                                | 3/8 | 55 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C3-FKG0                 | Relieving / Gauge 0-11 bar               | 3/8 | 55 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C3-FGG0                 | Relieving / Auto. Drain / Gauge 0-11 bar | 3/8 | 55 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C4-FK00                 | Relieving                                | 1/2 | 57 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C4-FKG0                 | Relieving / Gauge 0-11 bar               | 1/2 | 57 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |
| B18-C4-FGG0                 | Relieving / Auto. Drain / Gauge 0-11 bar | 1/2 | 57 | 10 | 50 | 51 | 254 | 60 | 60 | 0.7 |

Metal bowl manual drain use L in 7th position XXX-XX-XLXX

Metal bowl auto drain use H in 7th position XXX-XX-XHXX

\*Unit models are available in NPT by placing a "0" in the 4th position of the unit model number.

# COMPACT MODULAR 18 SERIES

## SPECIFICATIONS AND ORDERING DATA

| Model No.                        | Description                                   | Pipe Size<br>G | Max.<br>Flow<br>dm <sup>3</sup> /s | Max.<br>Pressure<br>bar | Max.<br>Temp °C | Height<br>mm | Width<br>mm | Depth<br>mm | Weight<br>kg. |
|----------------------------------|---|----------------|------------------------------------|-------------------------|-----------------|--------------|-------------|-------------|---------------|
| <b>3-UNIT COMBINATIONS*</b>      |   |                |                                    |                         |                 |              |             |             |               |
| C18-C2-FK00                      | Filter / Regulator / Lubricator / Man. Drain  | 1/4            | 48                                 | 10                      | 50              | 212          | 197         | 106         | 1.83          |
| C18-C3-FK00                      | Filter / Regulator / Lubricator / Man. Drain  | 3/8            | 48                                 | 10                      | 50              | 212          | 197         | 106         | 1.83          |
| C18-C4-FK00                      | Filter / Regulator / Lubricator / Man. Drain  | 1/2            | 48                                 | 10                      | 50              | 212          | 197         | 106         | 1.83          |
| C18-C2-FG00                      | Filter / Regulator / Lubricator / Auto. Drain | 1/4            | 48                                 | 10                      | 50              | 212          | 197         | 106         | 1.83          |
| C18-C3-FG00                      | Filter / Regulator / Lubricator / Auto. Drain | 3/8            | 48                                 | 10                      | 50              | 212          | 197         | 106         | 1.83          |
| C18-C4-FG00                      | Filter / Regulator / Lubricator / Auto. Drain | 1/2            | 48                                 | 10                      | 50              | 212          | 197         | 106         | 1.83          |
| C18-C2-FKG0                      | Filter / Regulator / Lubricator / Gauge       | 1/4            | 48                                 | 10                      | 50              | 164          | 197         | 106         | 1.83          |
| C18-C3-FKG0                      | Filter / Regulator / Lubricator / Gauge       | 3/8            | 48                                 | 10                      | 50              | 164          | 197         | 106         | 1.83          |
| C18-C4-FKG0                      | Filter / Regulator / Lubricator / Gauge       | 1/2            | 48                                 | 10                      | 50              | 164          | 197         | 106         | 1.83          |
| <b>2-UNIT COMBINATIONS*</b>      |   |                |                                    |                         |                 |              |             |             |               |
| D18-C2-FK00                      | Filter / Regulator & Lubricator / Man. Drain  | 1/4            | 32                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C3-FK00                      | Filter / Regulator & Lubricator / Man. Drain  | 3/8            | 50                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C4-FK00                      | Filter / Regulator & Lubricator / Man. Drain  | 1/2            | 50                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C2-FG00                      | Filter / Regulator & Lubricator / Auto. Drain | 1/4            | 32                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C3-FG00                      | Filter / Regulator & Lubricator / Auto. Drain | 3/8            | 45                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C4-FG00                      | Filter / Regulator & Lubricator / Auto. Drain | 1/2            | 45                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C2-FKG0                      | Filter / Regulator & Lubricator / Gauge       | 1/4            | 32                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C3-FKG0                      | Filter / Regulator & Lubricator / Gauge       | 3/8            | 45                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| D18-C4-FKG0                      | Filter / Regulator & Lubricator / Gauge       | 1/2            | 45                                 | 10                      | 50              | 254          | 128         | 106         | 1.35          |
| <b>OPTIONS &amp; ACCESSORIES</b> |   |                |                                    |                         |                 |              |             |             |               |
| K4515N14300                      | Gauge 0- 20 bar                               | —              | —                                  | —                       | —               | —            | 40          | 24          | —             |
| K4515N14160                      | Gauge 0-11 bar                                | —              | —                                  | —                       | —               | —            | 40          | 24          | —             |
| K4515N14060                      | Gauge 0-4 bar                                 | —              | —                                  | —                       | —               | —            | 40          | 24          | —             |
| K4515N14030                      | Gauge 0-2 bar                                 | —              | —                                  | —                       | —               | —            | 40          | 24          | —             |
| GPA-96-610                       | End Block                                     | 1/4            | —                                  | —                       | —               | —            | 40          | 22          | —             |
| GPA-96-611                       | End Block                                     | 3/8            | —                                  | —                       | —               | —            | 40          | 22          | —             |
| GPA-96-612                       | End Block                                     | 1/2            | —                                  | —                       | —               | —            | 40          | 22          | —             |
| GPA-96-613                       | End Block                                     | 3/4            | —                                  | —                       | —               | —            | 40          | 22          | —             |
| GPA-96-601                       | Joiner Set                                    | —              | —                                  | —                       | —               | —            | 9           | —           | —             |
| GPA-96-603                       | T-Bracket/Joiner Set                          | —              | —                                  | —                       | —               | —            | 9           | —           | —             |
| GPA-96-606                       | L-Type Bracket                                | —              | —                                  | —                       | —               | 70           | 70          | 50          | —             |
| GPA-96-604                       | L-Type Bracket                                | —              | —                                  | —                       | —               | 72           | 72          | 25          | —             |
| GPA-96-602                       | T-Type Bracket                                | —              | —                                  | —                       | —               | 95           | 19          | —           | —             |
| RRP-96-673                       | Panel Mount Nut (Aluminum)                    | —              | —                                  | —                       | —               | —            | —           | —           | —             |
| RRP-96-675                       | Panel Mount Nut (Plastic)                     | —              | —                                  | —                       | —               | —            | —           | —           | —             |
| RRP-96-671                       | Tamper Resistant Kit                          | —              | —                                  | —                       | —               | —            | —           | —           | —             |
| GRP-96-000                       | Manual Override Drain                         | —              | —                                  | —                       | —               | —            | —           | —           | —             |
| <b>OTHER PRODUCTS</b>            |   |                |                                    |                         |                 |              |             |             |               |
| V18-C2-0000**                    | Safety Lockout Valve                          | 1/4            | 65                                 | 10                      | 80              | 80           | 49          | 81          | 0.34          |
| V18-C3-0000                      | Safety Lockout Valve                          | 3/8            | 102                                | 10                      | 80              | 80           | 49          | 81          | 0.34          |
| V18-C4-0000                      | Safety Lockout Valve                          | 1/2            | 127                                | 10                      | 80              | 80           | 49          | 81          | 0.34          |
| N18-C4-0000                      | Diverter Block                                | 1/2            | 189                                | 21                      | 80              | 48           | 48          | 60          | 0.34          |
| N18-C4-C000                      | Diverter Block with Check Valve               | 1/2            | 189                                | 21                      | 80              | 48           | 60          | 60          | 0.34          |

\*Unit models are available in NPT by placing a "0" in the 4th position of the unit model number.

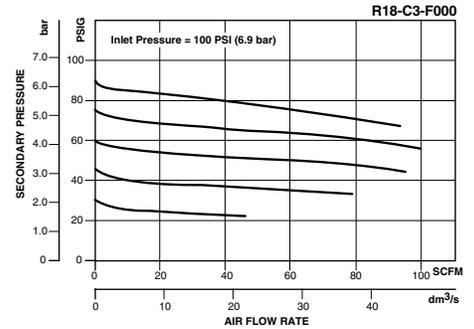
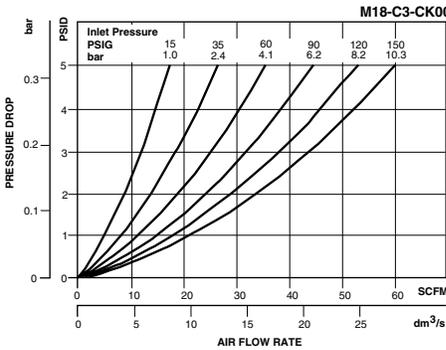
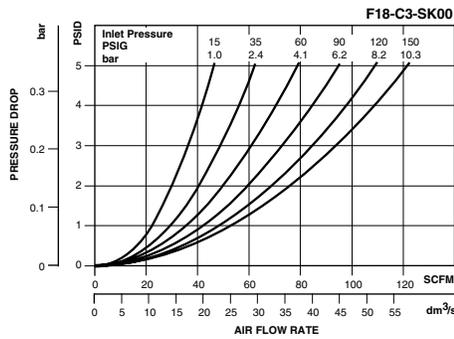
\*\*V18 flow is left to right. For right to left flow, order model V19.

# COMPACT MODULAR 18 SERIES

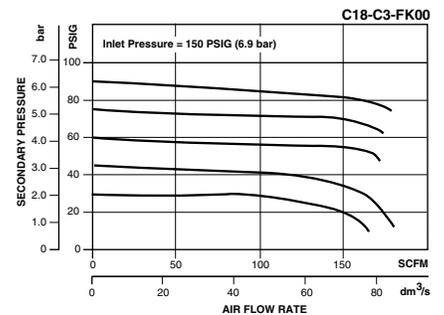
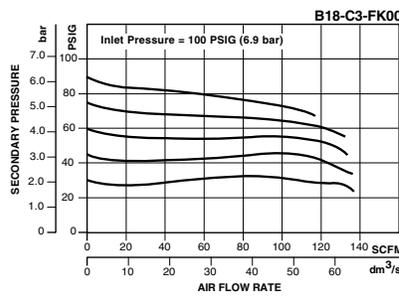
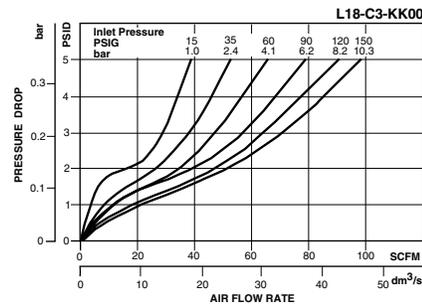
## FLOW CHARTS

**Note: Regulator flow rate data based on inlet pressure = 7bar, all others = 0.34 bar P**

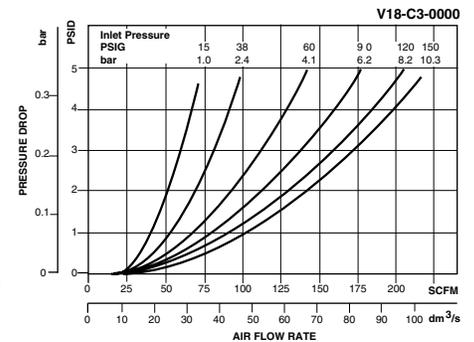
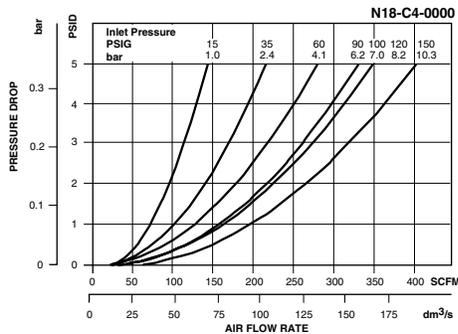
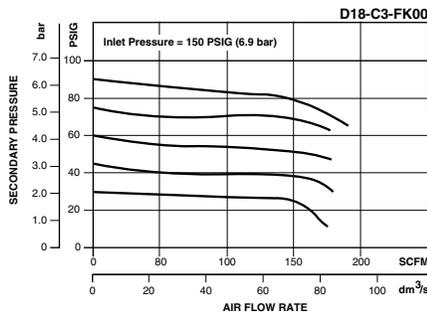
### F18 / M18 / R18



### L18 / B18 / C18



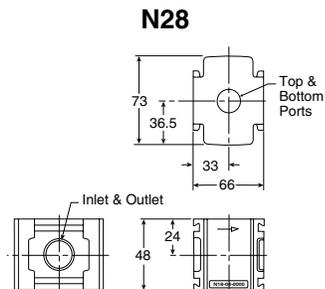
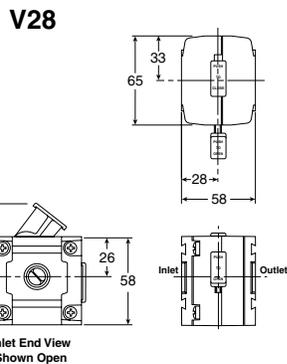
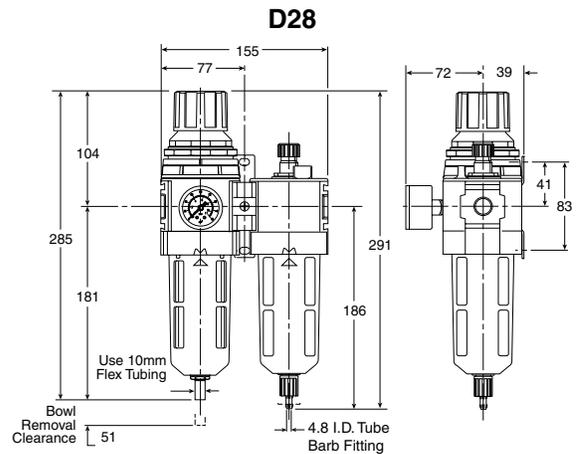
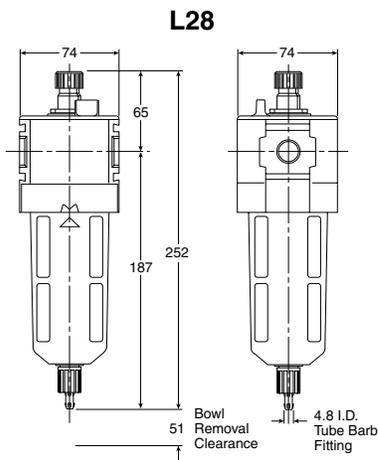
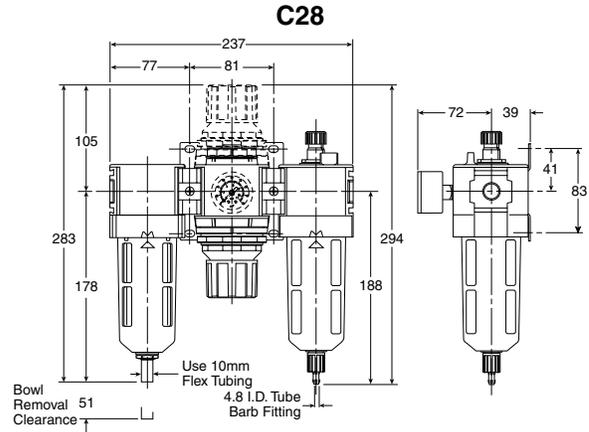
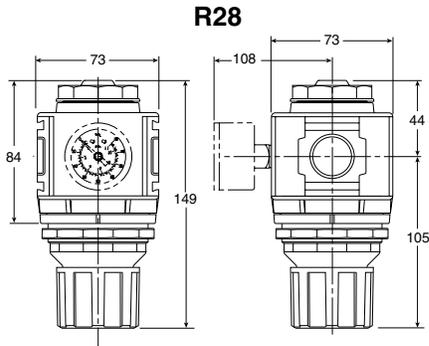
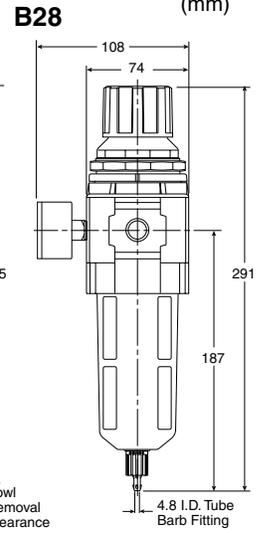
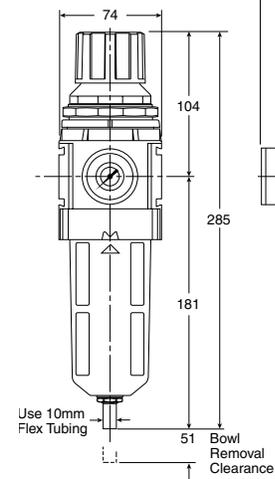
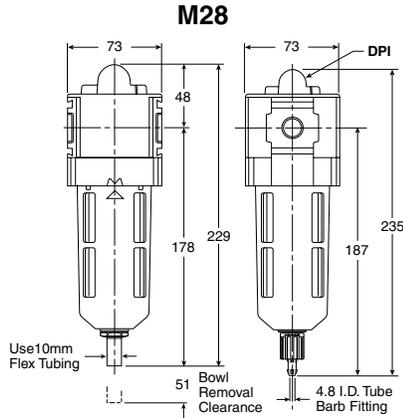
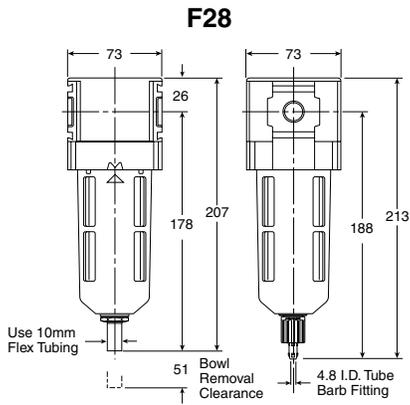
### D18 / N18 / V18



# STANDARD MODULAR 28 SERIES

## DIMENSIONAL DRAWINGS

Inches  
(mm)



# STANDARD MODULAR 28 SERIES\*

## SPECIFICATIONS AND ORDERING DATA

| Model No.       | Description                | Pipe Size G | Max. Flow dm <sup>3</sup> /s | Max. Pressure bar | Max. Temp °C | Bowl Capacity cm <sup>3</sup> | Height mm | Width mm | Depth mm | Weight kg. |
|-----------------|----------------------------|-------------|------------------------------|-------------------|--------------|-------------------------------|-----------|----------|----------|------------|
| <b>FILTERS*</b> |                            |             |                              |                   |              |                               |           |          |          |            |
| F28-C3-SK00     | Manual Drain               | 3/8         | 68                           | 10                | 50           | 85                            | 213       | 74       | 74       | 0.77       |
| F28-C4-SK00     | Manual Drain               | 1/2         | 72                           | 10                | 50           | 85                            | 213       | 74       | 74       | 0.77       |
| F28-C6-SK00     | Manual Drain               | 3/4         | 79                           | 10                | 50           | 85                            | 213       | 74       | 74       | 0.77       |
| F28-C3-SG00     | Automatic Mechanical Drain | 3/8         | 68                           | 10                | 50           | 85                            | 213       | 74       | 74       | 0.77       |
| F28-C4-SG00     | Automatic Mechanical Drain | 1/2         | 72                           | 10                | 50           | 85                            | 213       | 74       | 74       | 0.77       |
| F28-C6-SG00     | Automatic Mechanical Drain | 3/4         | 77                           | 10                | 50           | 85                            | 213       | 74       | 74       | 0.77       |

|                            |   |     |    |    |    |    |     |    |    |      |
|----------------------------|---|-----|----|----|----|----|-----|----|----|------|
| <b>COALESCING FILTERS*</b> |   |     |    |    |    |    |     |    |    |      |
| M28-C3-CK00                | Coalescing / Manual Drain               | 3/8 | 39 | 10 | 50 | 85 | 236 | 74 | 74 | 0.77 |
| M28-C4-CK00                | Coalescing / Manual Drain               | 1/2 | 43 | 10 | 50 | 85 | 236 | 74 | 74 | 0.77 |
| M28-C6-CK00                | Coalescing / Manual Drain               | 3/4 | 46 | 10 | 50 | 85 | 236 | 74 | 74 | 0.77 |
| M28-C3-CG00                | Coalescing / Automatic Mechanical Drain | 3/8 | 39 | 10 | 50 | 85 | 236 | 74 | 74 | 0.77 |
| M28-C4-CG00                | Coalescing / Automatic Mechanical Drain | 1/2 | 43 | 10 | 50 | 85 | 236 | 74 | 74 | 0.77 |
| M28-C6-CG00                | Coalescing / Automatic Mechanical Drain | 3/4 | 39 | 10 | 50 | 85 | 236 | 74 | 74 | 0.77 |

|                    |                               |     |    |    |    |   |     |    |    |      |
|--------------------|-------------------------------|-----|----|----|----|---|-----|----|----|------|
| <b>REGULATORS*</b> |                               |     |    |    |    |   |     |    |    |      |
| R28-C3-F000        | Relieving                     | 3/8 | 77 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C3-F0G0        | Relieving / Gauge 0-11 bar    | 3/8 | 77 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C4-F000        | Relieving                     | 1/2 | 80 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C4-F0G0        | Relieving / Gauge 0-11 bar    | 1/2 | 80 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C6-F000        | Relieving                     | 3/4 | 83 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C6-F0G0        | Relieving / Gauge 0-11 bar    | 3/4 | 83 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C3-R000        | Nonrelieving                  | 3/8 | 77 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C3-R0G0        | Nonrelieving / Gauge 0-11 bar | 3/8 | 77 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C4-R000        | Nonrelieving                  | 1/2 | 80 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C4-R0G0        | Nonrelieving / Gauge 0-11 bar | 1/2 | 80 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C6-R000        | Nonrelieving                  | 3/4 | 83 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |
| R28-C6-R0G0        | Nonrelieving / Gauge 0-11 bar | 3/4 | 83 | 21 | 80 | — | 150 | 74 | 74 | 0.77 |

|                     |              |     |    |    |    |     |     |    |    |      |
|---------------------|--------------|-----|----|----|----|-----|-----|----|----|------|
| <b>LUBRICATORS*</b> |              |     |    |    |    |     |     |    |    |      |
| L28-C3-LK00         | Manual Drain | 3/8 | 83 | 10 | 50 | 181 | 238 | 74 | 74 | 0.86 |
| L28-C4-LK00         | Manual Drain | 1/2 | 87 | 10 | 50 | 181 | 238 | 74 | 74 | 0.86 |
| L28-C6-LK00         | Manual Drain | 3/4 | 94 | 10 | 50 | 181 | 238 | 74 | 74 | 0.86 |

For no drain use C in 7th position XXX-XX-XCXX

|                             |  |     |    |    |    |    |     |    |    |      |
|-----------------------------|--|-----|----|----|----|----|-----|----|----|------|
| <b>FILTER / REGULATORS*</b> |  |     |    |    |    |    |     |    |    |      |
| B28-C3-FK00                 | Relieving                                | 3/8 | 66 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C3-FKG0                 | Relieving / Gauge 0-11 bar               | 3/8 | 66 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C3-FGG0                 | Relieving / Auto. Drain / Gauge 0-11 bar | 3/8 | 66 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C4-FK00                 | Relieving                                | 1/2 | 78 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C4-FKG0                 | Relieving / Gauge 0-11 bar               | 1/2 | 78 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C4-FGG0                 | Relieving / Auto. Drain / Gauge 0-11 bar | 1/2 | 78 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C6-FK00                 | Relieving                                | 3/4 | 83 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C6-FKG0                 | Relieving / Gauge 0-11 bar               | 3/4 | 83 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |
| B28-C6-FGG0                 | Relieving / Auto. Drain / Gauge 0-11 bar | 3/4 | 83 | 10 | 50 | 85 | 290 | 74 | 74 | 1.11 |

For metal bowl manual drain use L in 7th position XXX-XX-XLXX

For metal bowl automatic drain use H in 7th position XXX-XX-XHXX

\*Unit models are available in NPT by placing a "0" in the 4th position of the unit model number.

# STANDARD MODULAR 28 SERIES\*

## SPECIFICATIONS AND ORDERING DATA

| Model No.            | Description                                   | Pipe Size<br>G | Max.<br>Flow<br>dm <sup>3</sup> /s | Max.<br>Pressure<br>bar | Max.<br>Temp °C | Height<br>mm | Width<br>mm | Depth<br>mm | Weight<br>kg. |
|----------------------|---|----------------|------------------------------------|-------------------------|-----------------|--------------|-------------|-------------|---------------|
| <b>COMBINATIONS*</b> |   |                |                                    |                         |                 |              |             |             |               |
| C28-C3-FK00          | Filter / Regulator / Lubricator / Man. Drain  | 3/8            | 48                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C4-FK00          | Filter / Regulator / Lubricator / Man. Drain  | 1/2            | 64                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C6-FK00          | Filter / Regulator / Lubricator / Man. Drain  | 3/4            | 76                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C3-FG00          | Filter / Regulator / Lubricator / Auto. Drain | 3/8            | 48                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C4-FG00          | Filter / Regulator / Lubricator / Auto. Drain | 1/2            | 64                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C6-FG00          | Filter / Regulator / Lubricator / Auto. Drain | 3/4            | 76                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C3-FKG0          | Filter / Regulator / Lubricator / Gauge       | 3/8            | 48                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C4-FKG0          | Filter / Regulator / Lubricator / Gauge       | 1/2            | 64                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |
| C28-C6-FKG0          | Filter / Regulator / Lubricator / Gauge       | 3/4            | 76                                 | 10                      | 50              | 238          | 236         | 110         | 2.68          |

|             |   |     |    |    |    |     |     |     |      |
|-------------|---|-----|----|----|----|-----|-----|-----|------|
| D28-C3-FK00 | Filter / Regulator & Lubricator / Man. Drain  | 3/8 | 50 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C4-FK00 | Filter / Regulator & Lubricator / Man. Drain  | 1/2 | 52 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C6-FK00 | Filter / Regulator & Lubricator / Man. Drain  | 3/4 | 57 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C3-FG00 | Filter / Regulator & Lubricator / Auto. Drain | 3/8 | 50 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C4-FG00 | Filter / Regulator & Lubricator / Auto. Drain | 1/2 | 52 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C6-FG00 | Filter / Regulator & Lubricator / Auto. Drain | 3/4 | 57 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C3-FKG0 | Filter / Regulator & Lubricator / Gauge       | 3/8 | 50 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C4-FKG0 | Filter / Regulator & Lubricator / Gauge       | 1/2 | 52 | 10 | 50 | 290 | 155 | 110 | 2.11 |
| D28-C6-FKG0 | Filter / Regulator & Lubricator / Gauge       | 3/4 | 57 | 10 | 50 | 290 | 155 | 110 | 2.11 |

| <b>OPTIONS &amp; ACCESSORIES</b> |                   |   |   |   |   |   |    |    |   |
|----------------------------------|-------------------|---|---|---|---|---|----|----|---|
| K4515N14300                      | Gauge 0- 300 PSIG | — | — | — | — | — | 40 | 24 | — |
| K4515N14160                      | Gauge 0-160 PSIG  | — | — | — | — | — | 40 | 24 | — |
| K4515N14060                      | Gauge 0-60 PSIG   | — | — | — | — | — | 40 | 24 | — |
| K4515N14030                      | Gauge 0-30 PSIG   | — | — | — | — | — | 40 | 24 | — |

|            |           |     |   |   |   |   |    |    |   |
|------------|-----------|-----|---|---|---|---|----|----|---|
| GPA-96-610 | End Block | 1/4 | — | — | — | — | 40 | 22 | — |
| GPA-96-611 | End Block | 3/8 | — | — | — | — | 40 | 22 | — |
| GPA-96-612 | End Block | 1/2 | — | — | — | — | 40 | 22 | — |
| GPA-96-613 | End Block | 3/4 | — | — | — | — | 40 | 22 | — |

|            |                        |   |   |   |   |   |   |   |   |
|------------|------------------------|---|---|---|---|---|---|---|---|
| GPA-96-601 | Joiner Set             | — | — | — | — | — | — | 9 | — |
| GPA-96-603 | T-Bracket / Joiner Set | — | — | — | — | — | — | 9 | — |

|            |                |   |   |   |   |    |    |    |   |
|------------|----------------|---|---|---|---|----|----|----|---|
| GPA-96-607 | L-Type Bracket | — | — | — | — | 70 | 70 | 50 | — |
| GPA-96-605 | C-Type Bracket | — | — | — | — | 72 | 70 | 21 | — |
| GPA-96-602 | T-Type Bracket | — | — | — | — | 95 | 19 | —  | — |

|            |                            |   |   |   |   |   |   |   |   |
|------------|----------------------------|---|---|---|---|---|---|---|---|
| RRP-96-674 | Panel Mount Nut (Aluminum) | — | — | — | — | — | — | — | — |
| RRP-96-676 | Panel Mount Nut (Plastic)  | — | — | — | — | — | — | — | — |
| RRP-96-672 | Tamper Resistant Kit       | — | — | — | — | — | — | — | — |
| GRP-96-000 | Manual Override Drain      | — | — | — | — | — | — | — | — |

| <b>OTHER PRODUCTS</b> |                      |     |     |      |    |    |    |    |      |
|-----------------------|----------------------|-----|-----|------|----|----|----|----|------|
| V28-C3-0000**         | Safety Lockout Valve | 3/8 | 55  | 10.3 | 80 | 82 | 58 | 86 | 0.41 |
| V28-C4-0000           | Safety Lockout Valve | 1/2 | 102 | 10.3 | 80 | 82 | 58 | 86 | 0.41 |
| V28-C6-0000           | Safety Lockout Valve | 3/4 | 80  | 10.3 | 80 | 82 | 58 | 86 | 0.41 |

|             |                                 |     |     |     |    |    |    |    |      |
|-------------|---------------------------------|-----|-----|-----|----|----|----|----|------|
| N28-C6-0000 | Diverter Block                  | 3/4 | 305 | 300 | 80 | 48 | 66 | 73 | 0.43 |
| N28-C6-C000 | Diverter Block with Check Valve | 3/4 | 305 | 300 | 80 | 48 | 73 | 73 | 0.43 |

\*Unit models are available in NPT by placing a "0" in the 4th position of the unit model number.

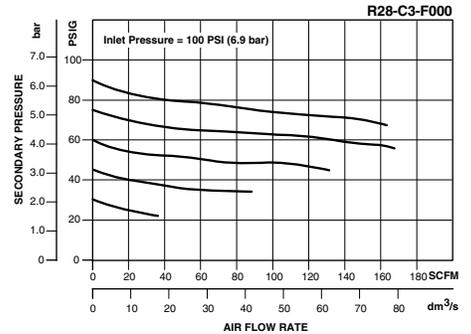
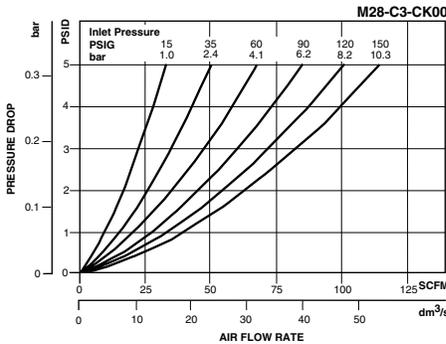
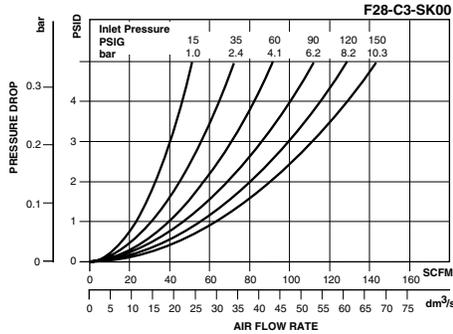
\*\*V28 flow is left to right. For right to left flow, order model V29.

# STANDARD MODULAR 28 SERIES

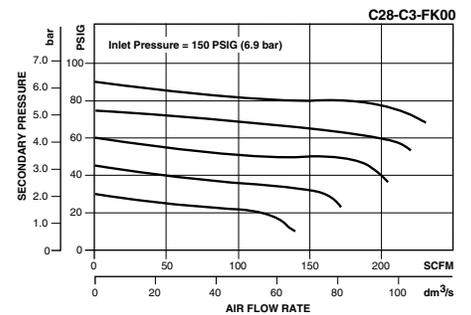
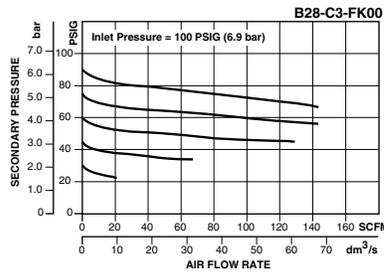
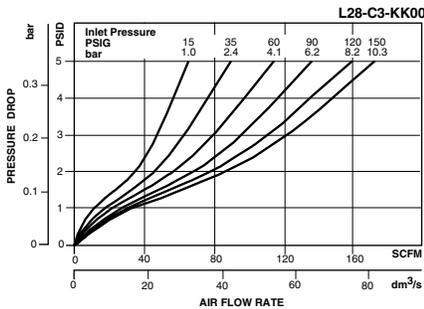
## FLOW CHARTS

**Note: Regulator flow data based on inlet pressure = 7 bar, all others = 0.34 bar P**

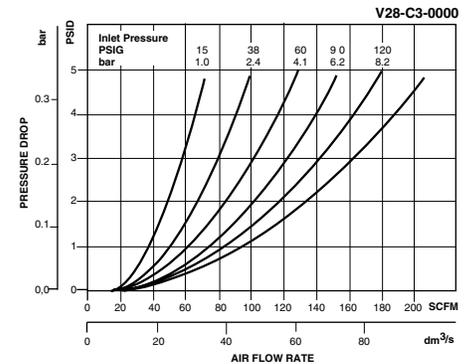
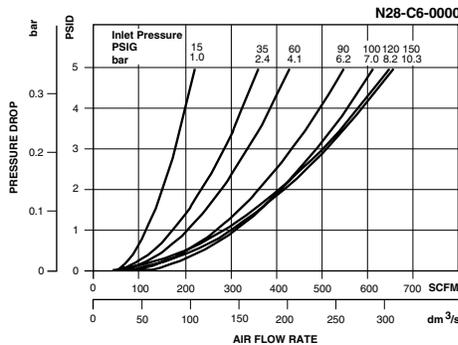
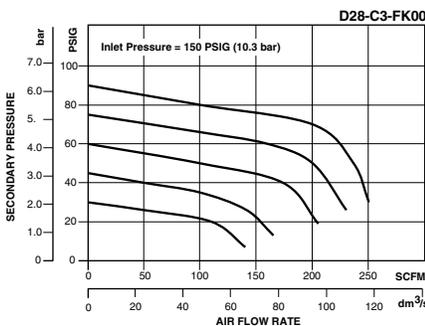
### F28 / M28 / R28



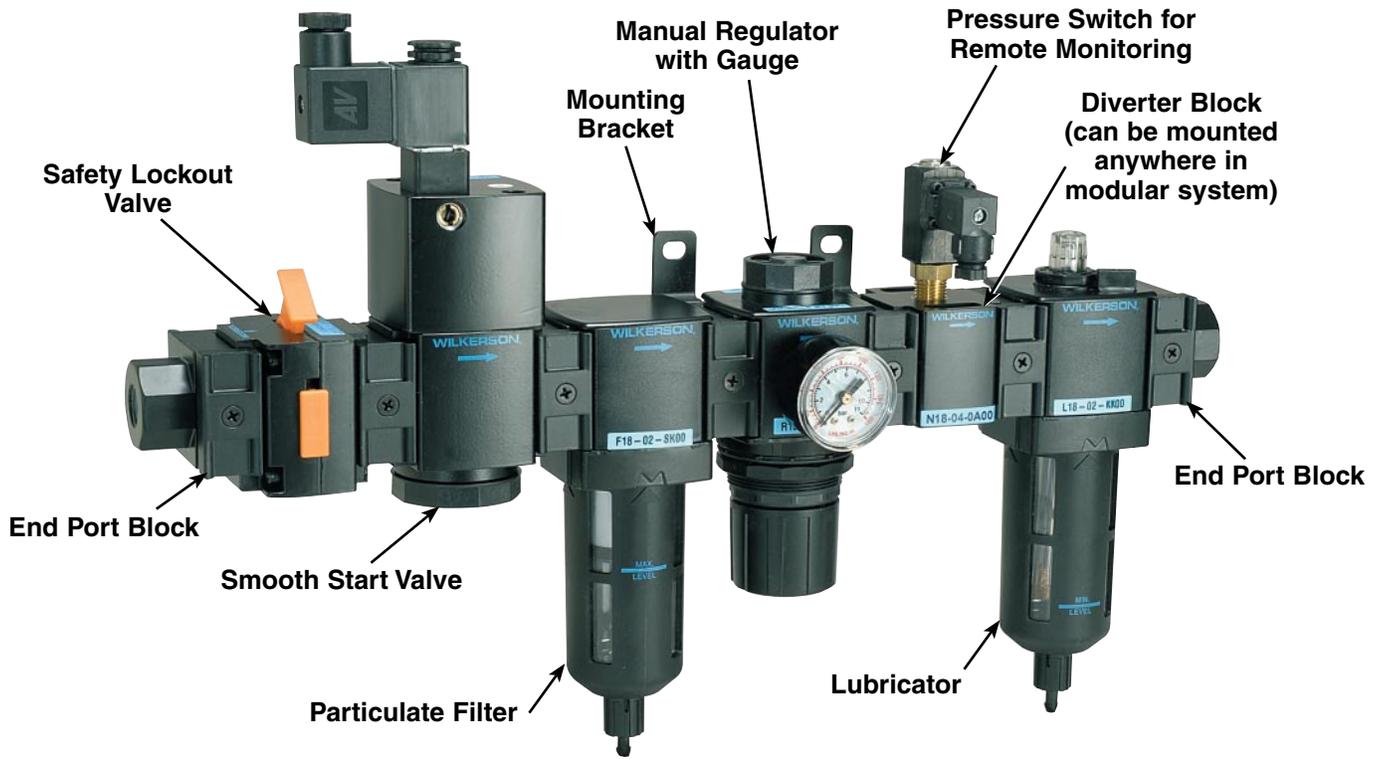
### L28 / B28 / C28



### D28 / N28 / V28



# THE TOTAL SYSTEMS APPROACH TO AIR PREPARATION



WILKERSON Corporation has been the industry leader in manufacturing innovative compressed air preparation products for 50 years. As pneumatic components and systems have become more complex and sophisticated, the need for better air preparation has also grown. While Wilkerson individual components can be used by themselves with good results, the key to a successful pneumatic system is to take the systems approach to designing performance and efficiency into the air system.

Wilkerson's 18 and 28 Modular Series products provide the system designer with many tools and options to successfully design an air preparation system that provides:

- High flows
- Minimum pressure drops
- Ease of installation
- Simplified maintenance and spare parts inventory
- Efficient space utilization
- Design flexibility with accessories and options
- Products to help comply with Industrial safety regulations
- Innovative products for remote process control and monitoring

The Wilkerson 18 and 28 Series Modular units use the same patented joiner set (U.S. Patent Number 5,383,689), which allows you to mix and match the two families. A good example

might be using an F28 filter with an R18 regulator. The use of the larger filter provides long element life with low pressure drops (efficiency), while the regulator provides cost savings.

The trend in industry is to automate process control and monitoring. Wilkerson's 18 and 28 Series specialty products can help to automate the control of the pneumatic system:

The E18 and E28 Emergency Stop Valves provide solenoid controlled operation to start the air system up smoothly, and the E-Stop function allows you to quickly exhaust, or "dump" the downstream air.

The ER1 and ER2 Electronic Regulators allow both remote control of the regulator and monitoring of regulated downstream pressure. In addition the process control can become "closed-loop", with a PC or PLC controlling the process and automatically making adjustments to the air system.

Pressure switches can be used anywhere in the system, and can either monitor system pressure or can control another function. There are two sets of contacts, one normally-open and one normally-closed.

Designing efficiency into the system is easy to do, and over the life of the system, can often save hundreds or even thousands of dollars in energy costs, maintenance costs, and production costs.

When you need Innovative Compressed Air Products for your pneumatic system, look to the leader—WILKERSON!

# Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories



## WARNING:

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:**

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

## 1. GENERAL INSTRUCTIONS

- 1.1. Scope:** This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters pressure Regulators and Lubricators), Vacuum products and related accessory components.
- 1.2. Fail-Safe:** Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.
- 1.3. Relevant International Standards:** For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See [www.iso.org](http://www.iso.org) for ordering information.
- 1.4. Distribution:** Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Wilkerson valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Wilkerson publications for the products considered or selected.
- 1.5. User Responsibility:** Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Wilkerson and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
  - Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
  - Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
  - Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
  - Assuring compliance with all applicable government and industry standards.
- 1.6. Safety Devices:** Safety devices should not be removed, or defeated.
- 1.7. Warning Labels:** Warning labels should not be removed, painted over or otherwise obscured.
- 1.8. Additional Questions:** Call the appropriate Wilkerson technical service department if you have any questions or require any additional information. See the Wilkerson publication for the product being considered or used, or call 269-629-2550, or go to [www.wilkersoncorp.com](http://www.wilkersoncorp.com), for telephone numbers of the appropriate technical service department.

## 2. PRODUCT SELECTION INSTRUCTIONS

- 2.1. Flow Rate:** The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.
- 2.2. Pressure Rating:** Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.
- 2.3. Temperature Rating:** Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.
- 2.4. Environment:** Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.
- 2.5. Lubrication and Compressor Carryover:** Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.
- 2.6. Polycarbonate Bowls and Sight Glasses:** To avoid potential polycarbonate bowl failures:
  - Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
  - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, ketones, esters or certain alcohols.
  - Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

**2.7. Chemical Compatibility:** For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

**2.8. Product Rupture:** Product rupture can cause death, serious personal injury, and property damage.

- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
- Consult product labeling or product literature for pressure rating limitations.

### 3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

**3.1. Component Inspection:** Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

**3.2. Installation Instructions:** Wilkerson published Installation Instructions must be followed for installation of Wilkerson valves, FRLs and vacuum components. These instructions are provided with every Wilkerson valve or FRL sold, or by calling 269-629-2550, or at [www.wilkersoncorp.com](http://www.wilkersoncorp.com).

**3.3. Air Supply:** The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

### 4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

**4.1. Maintenance:** Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

**4.2. Installation and Service Instructions:** Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Wilkerson valve and FRL sold, or are available by calling 269-629-2550, or by accessing the Wilkerson web site at [www.wilkersoncorp.com](http://www.wilkersoncorp.com).

**4.3. Lockout / Tagout Procedures:** Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

**4.4. Visual Inspection:** Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:

- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

**Caution: Leak detection solutions should be rinsed off after use.**

**4.5. Routine Maintenance Issues:**

- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

**4.6. Functional Test:** Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

**4.7. Service or Replacement Intervals:** It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:

- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

**4.8. Servicing or Replacing of any Worn or Damaged Parts:** To avoid unpredictable system behavior that can cause death, personal injury and property damage:

- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

**4.9. Putting Serviced System Back into Operation:** Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.

## Offer of Sale

The items described in this document and other documents or descriptions provided by The Company, its subsidiaries and its authorized distributors, are hereby offered for sale at prices to be established by The Company, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such item, when communicated to The Company, its subsidiaries or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

**1. Terms and Conditions of Sale:** All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

**2. Payment:** Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

**3. Delivery:** Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

**4. Warranty:** Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from The Company. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.

NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGN OR SPECIFICATIONS.

**5. Limitation of Remedy:** SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

**6. Changes, Reschedules and Cancellations:** Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

**7. Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitations, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter,

discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

**8. Buyer's Property:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

**9. Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

**10. Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

**11. Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

**12. Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

**WILKERSON®**

**Wilkerson**  
Pneumatic Division  
8676 E. M89  
P.O. Box 901  
Richland, MI 49083 USA

Customer/Technical Service

Tel: (269) 629-2550  
Fax: (269) 629-2475  
Web site: [www.wilkersoncorp.com](http://www.wilkersoncorp.com)