

# Ordering CONCOA Flowmeters

## Step One

The first choice in completing the Part Number Matrix is selecting a particular flowmeter series, depending on size and features desired. The flowmeter series number then becomes the first three digits of the part number.

## Step Two

The tube size from the **A** column and the float material from the **B** column are predicated entirely on flow conditions. The selection chart that accompanies the ordering information gives the flow rates of air at standard conditions (14.7 PSIA and 70°F). To determine flow rates for gases other than air at standard conditions, first decide the flow conditions including the specific gravity of the gas (see table), pressure, and temperature of the gas. Next, use the equations below to convert the flow rate of the gas desired in either SCFH or ml/min to the equivalent flow capacity of air at standard conditions.

$$Q_{\text{air}} = K_{\text{gas}} \times Q_{\text{gas}}$$

$$K_{\text{gas}} = \sqrt{G \times \frac{T}{530} \times \frac{14.7}{P}}$$

$Q_{\text{air}}$  = Equivalent flow capacity of air at standard conditions

$Q_{\text{gas}}$  = Maximum flow of metered gas (in SCFH or ml/min)

$G$  = Specific gravity of metered gas (see table)

$T$  = Absolute temperature (°F + 460) of metered gas at flow conditions

$P$  = Absolute pressure (PSIG + 14.7) of metered gas at flow conditions

Using the equivalent air flow, select a tube size and float material from the selection. These two numbers, representing choices from the **A** column and the **B** column become the next two digits of the part number.

Gas	Specific Gravity
Acetylene	0.9073
Air	1.0000
Ammonia	0.5963
Argon	1.3796
Butane	2.0854
Carbon Dioxide	1.5290
Chlorine	2.4860
Ethane	1.0493
Ethylene	0.9749
Helium	0.1380
Hydrogen	0.0659
Methane	0.5544
Nitrogen	0.9672
Nitrous Oxide	1.5297
Oxygen	1.1053
Propane	1.5620
Sulphur Dioxide	2.2638

## Step Three

Choose the material from the options in the **C** column. Refer to the chart beginning on page 199 for material compatibility. A "0" indicates a tube and float without a frame, either as a replacement for the appropriate size frame or as a component of a multi-tube flowmeter.

## Step Four

Select a valve option from those available in the **D** column. A high accuracy valve provides better resolution than a standard valve. Finally, specify an end connection from those available in the **XX** column. These three digits, preceded by a dash, become the final digits in the part number.

For example, using the table below to order a 2.55" (65mm) flowmeter with a maximum flow capacity equivalent to air at standard conditions of 280 ml/min (0.59 SCFH), a 316 stainless steel frame, a standard valve, and a 1/4" compression tube fitting connection, the part number would be 565 1421-TF4.

565	A	B	C	D	-CON(X)
Series	Tube Size*	Float Material*	Material	Valve	End Connection*
565	<b>1: 1</b>	<b>1: Glass</b>	<b>0: No frame* (fitting and float only)</b>	<b>0: No valve</b>	<b>000: 1/8" FPTw</b>
	<b>2: 2</b>	<b>2: Sapphire</b>	<b>1: Black anodized aluminum</b>	<b>1: Standard valve</b>	<b>TF2: 1/8" tube</b>
	<b>3: 3</b>	<b>3: 316L stainless steel</b>	<b>2: 316L stainless steel</b>	<b>2: High-accuracy valve</b>	<b>TF4: 1/4" tube</b>
	<b>4: 4</b>	<b>4: Carbolloy</b>			<b>HB4: 1/4" hose barb</b>
	<b>5: 5</b>				*For epdm/epr seals, add "E" after the end connection. For Kalrez® seals, add "K" after end connection.
	<b>6: 6</b>				
	<b>7: 7</b>				
	<b>8: 8</b>				
	<b>9: 9</b>				