

# O2 3100AL SERIES

Air loaded, High Pressure  
Back pressure regulators



Premier O2 3100AL Series air loaded, piston sensed, single stage, high pressure, back pressure regulators are rated for control pressures up to 10000 PSIG (689.48 bar), and Cv 0.03, 0.06, 0.14, or 0.2. Premier O2 3100AL Series regulators are designed for use with Oxygen.

## FEATURES

- Compatible with electro pneumatic controllers
- Designed for use with oxygen
- Cv 0.03, 0.06, 0.14, or 0.2
- Control pressures up to 10000 PSIG (689.48 bar)
- Machined bar stock body, bonnet and piston eliminates porosity found in castings
- Numerous optional features are available

**SOME APPLICATIONS WILL REQUIRE A CUSTOM SOLUTION.**  
CONTACT PREMIER INDUSTRIES TO REQUEST A MODIFICATION  
OR A CUSTOM DESIGN.

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## SPECIFICATIONS

- **MAXIMUM INLET PRESSURE:**
  - REGULATOR:
    - 10000 PSIG / 689.5 BAR (*MONEL®*)
    - 6000 PSIG / 413.7 BAR (*SAE 360 BRASS*)
  - AIR ACTUATOR:
    - 110 PSIG (*7.5 BAR*)
- **CONTROL PRESSURE RANGES:**
  - 10-1500 PSIG (*0.69 - 103.42 BAR*)
    - Diameter: 1.000"*
    - Area: 0.7854 in<sup>2</sup>*
    - Ratio: <sup>16</sup>/<sub>1</sub> \*\**
  - 15-2500 PSIG (*1.03 - 172.37 BAR*)
    - Diameter: 0.750"*
    - Area: 0.4418 in<sup>2</sup>*
    - Ratio: <sup>28</sup>/<sub>1</sub> \*\**
  - 50-6000 PSIG (*3.45 - 413.69 BAR*)
    - Diameter: 0.500"*
    - Area: 0.1964 in<sup>2</sup>*
    - Ratio: <sup>64</sup>/<sub>1</sub> \*\**
  - 100-10000 PSIG (*6.89 - 689.5 BAR*)  
(*MONEL® ONLY*)
    - Diameter: 0.375"*
    - Area: 0.1104 in<sup>2</sup>*
    - Ratio: <sup>114</sup>/<sub>1</sub> \*\**
- \*\* 4.0" diameter diaphragm  
Diaphragm area: 12.5664 in<sup>2</sup>*
- **FLOW (Cv):** 0.03, 0.06, 0.14, or 0.20

*Viton® and Vespel® are registered trademarks of  
E.I. duPont de Nemours and Company*

*Monel® is a registered trademark of Special Metals  
Corporation*

*Krytox® is a registered trademark of The Chemours  
Company FC, LLC.*

## MATERIALS OF CONSTRUCTION

- **BODY OPTIONS:**
  - SAE 360 brass
  - Monel® 400
- **HOUSING, AIR ACTUATOR :**
  - 6061-T6 Aluminum/clear anodized
- **DIAPHRAGM, AIR ACTUATOR :**
  - Neoprene, nylon fabric-reinforced
- **MAIN VALVE SEAT OPTIONS:**
  - Vespel® SP-21
  - PCTFE (*See page 4 for special instructions*)
- **ELASTOMER SEAL OPTIONS:**
  - BUNA-N
  - Viton-A®
  - EPDM
  - FFKM (*Contact Premier for pricing*)
- **WETTED PARTS:**
  - Monel® 400
  - Monel® K-500
  - SAE 360 Brass
- **BACK-UP RINGS:**
  - PTFE
  - PCTFE
- **STANDARD LUBRICANT:**
  - Krytox® GPL 206

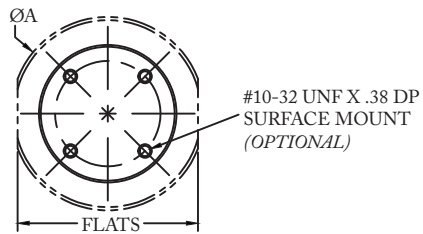
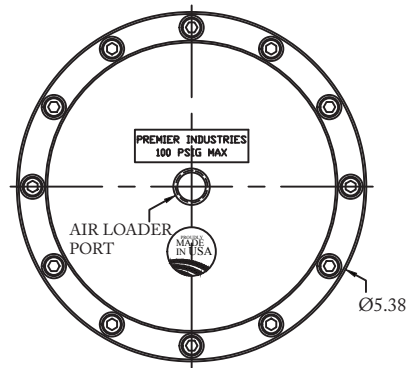
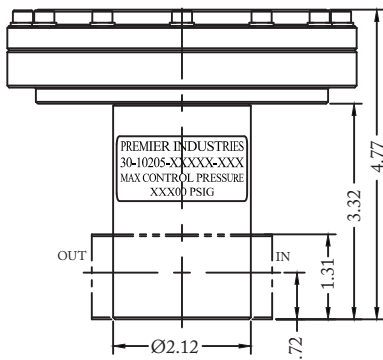
## PORTING

- **INLET/OUTLET**
  - 1/4", 3/8", 1/2" FNPT
  - 1/4", 3/8", 1/2" SAE J1926
  - 1/4", 3/8", 1/2" SAE AS5202 (*MS33649\*\**)
  - 1/4", 3/8", 9/16" MEDIUM PRESSURE
- \*\*SAE AS5202 supersedes MS33649*
- **AIR ACTUATOR:**
  - 1/4-18" FNPT (*Standard*)
  - 1/4" SAE AS5202 (*mod*)
  - 1/4" SAE J1926 (*mod*)
  - 1/8" FNPT (*mod*)

## OPTIONAL ITEMS

- Panel mounting bracket: *P/N: 30-10059*  
(*Ø2.15 panel hole*)
- Surface mount
- Private label

PART NUMBER: Oy30-10205



BODY DIMENSIONS		
PORT TYPE	ØA	FLATS
1/4 & 3/8 NPT	Ø2.12	—
1/4" M.P.	Ø2.12	1.98
1/2" NPT	Ø2.48	—
1/4" SAE	Ø2.48	2.36
3/8" M.P.	Ø2.48	2.36
3/8" SAE	Ø2.73	2.58
1/2" SAE	Ø2.98	2.81
9/16" M.P.	Ø2.98	2.81

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PART #	-	1	2	3	4	5	-	6	7	8	-	MODS
Oy30-10205	-						-				-	

1	BODY MATERIALS (MAX. INLET PRESSURE)	
<b>B</b>	SAE 360 BRASS (6000 PSIG / 413.7 BAR)	
<b>M</b>	MONEL® 400 (10000 PSIG / 689.5 BAR)	
2	CONTROL PRESSURE	
<b>3</b>	10-1500 PSIG (0.69-103.4 BAR)	Diameter: 1.000" Area: 0.7854 in <sup>2</sup> Ratio: 16/1 **
<b>4</b>	15-2500 PSIG (1.0-172.4 BAR)	Diameter: 0.750" Area: 0.4418 in <sup>2</sup> Ratio: 28/1 **
<b>6</b>	50-6000 PSIG (3.4-413.7 BAR)	Diameter: 0.500" Area: 0.1964 in <sup>2</sup> Ratio: 64/1 **
<b>7</b>	100-10000 PSIG (6.9-689.5 BAR) (MONEL ONLY)	Diameter: 0.375" Area: 0.1104 in <sup>2</sup> Ratio: 114/1 **
<b>** 4.0" DIAMETER DIAPHRAGM - DIAPHRAGM AREA: 12.5664 IN<sup>2</sup></b>		
3	FLOW (Cv)	
<b>A</b>	Cv 0.03	
<b>0</b>	Cv 0.06	
<b>1</b>	Cv 0.14	
<b>2</b>	Cv 0.2	

4	PORT SIZE									
<b>4</b>	1/4"									
<b>6</b>	3/8"									
<b>8</b>	1/2"*									
<b>9</b>	9/16"***									
<b>*1/2" NOT AVAILABLE IN MEDIUM PRESSURE **9/16" ONLY AVAILABLE IN MEDIUM PRESSURE</b>										
5	PORT TYPE									
<b>1</b>	FNPT									
<b>2</b>	SAE J1926									
<b>3</b>	SAE AS5202 (MS33649**)									
<b>4</b>	MEDIUM PRESSURE									
<b>**SAE AS5202 SUPERSEDES MS33649</b>										
6	VALVE SEAT									
<b>0</b>	VESPEL® SP-21									
<b>4</b>	PCTFE*									
<table border="1"> <thead> <tr> <th>*** PCTFE SEATS</th> <th>MAX CONTROL PRESSURE</th> </tr> </thead> <tbody> <tr> <td>Cv 0.03, 0.06</td> <td>6000 PSIG</td> </tr> <tr> <td>Cv 0.14</td> <td>4000 PSIG</td> </tr> <tr> <td>Cv 0.20</td> <td>3000 PSIG</td> </tr> </tbody> </table>			*** PCTFE SEATS	MAX CONTROL PRESSURE	Cv 0.03, 0.06	6000 PSIG	Cv 0.14	4000 PSIG	Cv 0.20	3000 PSIG
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Cv 0.03, 0.06	6000 PSIG									
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<b>PCTFE SEAT MAXIMUM CONTROL PRESSURES SUPERCEDE BODY MATERIAL MAXIMUM CONTROL PRESSURES</b>										

7 8	O-RING MATERIAL
<b>02</b>	VITON-A®
<b>11</b>	FFKM (Contact Premier for pricing)
MODIFICATIONS Separate multiple mods with a dash	
<b>BLANK</b>	NONE
<b>AC</b>	KRYTOX 240AC
<b>AS</b>	1/4" SAE AS5202 LOADER PORT
<b>E</b>	1/8" NPT AIR LOADER PORT
<b>J</b>	1/4" SAE J1926 LOADER PORT
<b>SM</b>	SURFACE MOUNT

**10000 PSIG MAX INLET (MONEL®)  
6000 PSIG MAX INLET (BRASS)**  
The end user is responsible to ensure adequate fittings are used to connect regulator to plumbing.

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Monel® is a registered trademark of Special Metals Corporation

Contact factory for material certifications. Fees may apply.