

# Reference

## Liquid Cylinder General Specifications

Always consult the equipment manufacturer

<b>Dimensions</b>					
Diameter	20 in. (51 cm)	20 in. (51 cm)	20 in. (51 cm)	22 in. (56 cm)	26 in. (66 cm)
Height	61 3/8 in. (156 cm)	64 5/8 in. (164 cm)	64 3/4 in. (164 cm)	60.25 in. (153 cm)	58 1/8 in. (148 cm)
<b>Weight</b>					
Empty	272 lbs (123 kg)	284 lbs. (129 kg)	310 lbs. (141 kg)	312 lbs. (142 kg)	465 lbs. (21 kg)
<b>Liquid Capacity</b>					
Maximum	46.5 gals. (176 L)	50 gals. (188 L)	50 gals. (188 L)	55 gals. (209 L)	65.25 gals. (247 L)
Usable	43.5 gals. (165 L)	46.5 gals. (176 L)	46.5 gals. (176 L)	52 gals. (196 L)	63.5 gals. (240 L)
<b>Gas Withdrawal Rate</b>					
Oxygen	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)
Nitrogen	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)
Argon	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)	350 SCFH (10 m <sup>3</sup> /h)
Carbon Dioxide	150 SCFH (4.25 m <sup>3</sup> /h)	150 SCFH (4.25 m <sup>3</sup> /h)	150 SCFH (4.25 m <sup>3</sup> /h)	150 SCFH (4.25 m <sup>3</sup> /h)	150 SCFH (4.25 m <sup>3</sup> /h)
<b>Gaseous Capacity</b>					
Oxygen	4350 ft <sup>3</sup> (123 m <sup>3</sup> )	4651 ft <sup>3</sup> (132 m <sup>3</sup> )	4397 ft <sup>3</sup> (124 m <sup>3</sup> )	5170 ft <sup>3</sup> (146 m <sup>3</sup> )	6100 ft <sup>3</sup> (173 m <sup>3</sup> )
Nitrogen	3478 ft <sup>3</sup> (98 m <sup>3</sup> )	3712 ft <sup>3</sup> (105 m <sup>3</sup> )	3312 ft <sup>3</sup> (94 m <sup>3</sup> )	4126 ft <sup>3</sup> (117 m <sup>3</sup> )	4871 ft <sup>3</sup> (138 m <sup>3</sup> )
Argon	4236 ft <sup>3</sup> (120 m <sup>3</sup> )	4516 ft <sup>3</sup> (128 m <sup>3</sup> )	4285 ft <sup>3</sup> (121 m <sup>3</sup> )	5029 ft <sup>3</sup> (142 m <sup>3</sup> )	5938 ft <sup>3</sup> (168 m <sup>3</sup> )
Carbon Dioxide	3383 ft <sup>3</sup> (96 m <sup>3</sup> )	3619 ft <sup>3</sup> (102 m <sup>3</sup> )	3330 ft <sup>3</sup> (94 m <sup>3</sup> )	4121 ft <sup>3</sup> (117 m <sup>3</sup> )	4511 ft <sup>3</sup> (128 m <sup>3</sup> )
<b>Pressure Relief Setting</b>					
	350 PSIG (25 BAR)	350 PSIG (25 BAR)	500 PSIG (35 BAR)	350 PSIG (25 BAR)	350 PSIG (25 BAR)

## Flow Conversions

	cm <sup>3</sup> /min	cm <sup>3</sup> /sec	ft <sup>3</sup> /hr	ft <sup>3</sup> /min	m <sup>3</sup> /hr	m <sup>3</sup> /min	L/hr	L/min
Multiply By								
cm <sup>3</sup> /min	-----	1.66 x 10 <sup>-2</sup>	2.12 x 10 <sup>-3</sup>	3.53 x 10 <sup>-5</sup>	6 x 10 <sup>-5</sup>	1 x 10 <sup>-6</sup>	6.0 x 10 <sup>-2</sup>	1 x 10 <sup>-2</sup>
cm <sup>3</sup> /sec	6 x 10 <sup>1</sup>	-----	1.27 x 10 <sup>-1</sup>	2.12 x 10 <sup>-3</sup>	3.6 x 10 <sup>-3</sup>	6 x 10 <sup>-5</sup>	3.6 x 10 <sup>0</sup>	6 x 10 <sup>-2</sup>
ft <sup>3</sup> /hr	4.72 x 10 <sup>2</sup>	7.87 x 10 <sup>1</sup>	-----	1.67 x 10 <sup>-2</sup>	2.83 x 10 <sup>-2</sup>	4.72 x 10 <sup>-4</sup>	2.83 x 10 <sup>1</sup>	4.72 x 10 <sup>-1</sup>
ft <sup>3</sup> /min	2.83 x 10 <sup>4</sup>	4.72 x 10 <sup>2</sup>	6.0 x 10 <sup>1</sup>	-----	1.7 x 10 <sup>1</sup>	2.83 x 10 <sup>-2</sup>	1.7 x 10 <sup>-2</sup>	2.83 x 10 <sup>1</sup>
m <sup>3</sup> /hr	1.67 x 10 <sup>4</sup>	2.78 x 10 <sup>2</sup>	3.53 x 10 <sup>1</sup>	5.89 x 10 <sup>-2</sup>	-----	1.67 x 10 <sup>-2</sup>	1 x 10 <sup>3</sup>	1.67 x 10 <sup>1</sup>
m <sup>3</sup> /min	1 x 10 <sup>6</sup>	1.67 x 10 <sup>4</sup>	2.12 x 10 <sup>3</sup>	3.53 x 10 <sup>1</sup>	6.0 x 10 <sup>1</sup>	-----	6.0 x 10 <sup>4</sup>	1 x 10 <sup>3</sup>
L/hr	1.67 x 10 <sup>1</sup>	2.78 x 10 <sup>-1</sup>	3.53 x 10 <sup>-2</sup>	5.89 x 10 <sup>-4</sup>	1 x 10 <sup>-3</sup>	1.67 x 10 <sup>-5</sup>	-----	1.67 x 10 <sup>-2</sup>
L/min	1 x 10 <sup>3</sup>	1.67 x 10 <sup>1</sup>	2.12 x 10 <sup>0</sup>	3.53 x 10 <sup>-2</sup>	6.0 x 10 <sup>-2</sup>	1 x 10 <sup>-3</sup>	6.0 x 10 <sup>1</sup>	-----

## Temperature Conversions

	°C	°F	°K	°R
Multiply By				
°C + 17.78	-----	1.8	-----	-----
°C + 273.16	-----	-----	1	-----
°F - 32	0.55556	-----	-----	-----
°F + 459.72	-----	-----	-----	1
°K + 273.16	1	-----	-----	-----
°R - 459.72	-----	1	-----	-----

## Scientific Notation

Notation	Equivalent	Notation	Equivalent
1 x 10 <sup>10</sup>	10,000,000,000	1 x 10 <sup>-1</sup>	0.1
1 x 10 <sup>9</sup>	1,000,000,000	1 x 10 <sup>-2</sup>	0.01
1 x 10 <sup>8</sup>	100,000,000	1 x 10 <sup>-3</sup>	0.001
1 x 10 <sup>7</sup>	10,000,000	1 x 10 <sup>-4</sup>	0.0001
1 x 10 <sup>6</sup>	1,000,000	1 x 10 <sup>-5</sup>	0.00001
1 x 10 <sup>5</sup>	100,000	1 x 10 <sup>-6</sup>	0.000001
1 x 10 <sup>4</sup>	10,000	1 x 10 <sup>-7</sup>	0.0000001
1 x 10 <sup>3</sup>	1,000	1 x 10 <sup>-8</sup>	0.00000001
1 x 10 <sup>2</sup>	100	1 x 10 <sup>-9</sup>	0.000000001
1 x 10 <sup>1</sup>	10	1 x 10 <sup>-10</sup>	0.0000000001

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1501 Harpers Road • Virginia Beach, VA 23454 USA

1.800.225.0473 • 757.422.8330 • Fax: 757.422.3125 • www.concoa.com

# Reference

## Length

	Å	cm	ft	in	m	micron	mm	yd
Multiply By								
Å	-----	$1 \times 10^{-8}$	$3.28 \times 10^{-9}$	$3.93 \times 10^{-9}$	$1 \times 10^{-10}$	$1 \times 10^{-4}$	$1 \times 10^{-7}$	$1.09 \times 10^{-10}$
cm	$1 \times 10^8$	-----	$3.28 \times 10^{-2}$	$3.94 \times 10^{-1}$	$1 \times 10^{-2}$	$1 \times 10^4$	10	$1.09 \times 10^{-2}$
ft	$3.04 \times 10^9$	$3.048 \times 10^1$	-----	$1.2 \times 10^1$	$3.04 \times 10^{-1}$	$3.04 \times 10^5$	$3.04 \times 10^2$	$3.33 \times 10^{-1}$
in	$2.54 \times 10^8$	$2.54 \times 10^0$	$8.33 \times 10^{-2}$	-----	$2.54 \times 10^{-2}$	$2.54 \times 10^4$	$2.54 \times 10^1$	$2.77 \times 10^2$
m	$1 \times 10^{10}$	$1 \times 10^2$	$3.281 \times 10^0$	$3.93 \times 10^1$	-----	$1 \times 10^6$	$1 \times 10^3$	$1.09 \times 10^0$
micron	$1 \times 10^4$	$1 \times 10^{-4}$	$3.28 \times 10^{-6}$	$3.93 \times 10^{-5}$	$1 \times 10^{-6}$	-----	$1 \times 10^{-3}$	$1.09 \times 10^{-6}$
mm	$1 \times 10^7$	$1 \times 10^{-3}$	$3.28 \times 10^{-3}$	$3.93 \times 10^{-2}$	$1 \times 10^{-2}$	$1 \times 10^3$	-----	$1.09 \times 10^{-3}$
yd	$9.14 \times 10^9$	$9.14 \times 10^1$	$3 \times 10^0$	$3.6 \times 10^1$	$9.14 \times 10^{-1}$	$9.14 \times 10^5$	$9.14 \times 10^2$	-----

## Pressure

	atm	BAR	Ft of H <sub>2</sub> O	in of Hg	in of H <sub>2</sub> O	kg/cm <sup>2</sup>	kPa	mm of Hg	PSI
Multiply By									
atm	-----	1.013	33.932	29.921	407.183	1.033	101.317	760	14.696
BAR	0.987	-----	33.488	29.530	401.859	1.019	100	750.062	14.504
Ft. of H <sub>2</sub> O	0.029	0.029	-----	0.883	12	0.030	2.989	22.419	0.433
in of Hg	0.033	0.034	1.134	-----	13.6	0.035	3.377	25.4	0.491
in of H <sub>2</sub> O	0.002	0.002	0.083	0.074	-----	0.003	0.025	1.868	0.036
kg/cm <sup>2</sup>	0.968	0.981	32.808	28.959	393.701	-----	98.039	735.559	14.223
kPa	0.009	0.010	0.335	0.296	4.015	0.010	-----	7.501	0.145
mm of Hg	0.001	0.001	0.045	0.039	0.535	0.001	0.133	-----	0.019
PSI	0.06805	0.06895	2.3089	2.0360	27.7085	0.07031	6.89465	51.175	-----

## Volume

	cm <sup>3</sup> (ml)	ft <sup>3</sup>	in <sup>3</sup>	m <sup>3</sup>	US gal.	L
Multiply By						
cm <sup>3</sup> (ml)	-----	$3.53 \times 10^{-5}$	$6.10 \times 10^{-2}$	$1 \times 10^{-6}$	$2.56 \times 10^{-3}$	$1 \times 10^{-3}$
ft <sup>3</sup>	$2.83 \times 10^4$	-----	$1.73 \times 10^3$	$2.83 \times 10^{-2}$	7.48	2.83
in <sup>3</sup>	1.64	$5.79 \times 10^{-6}$	-----	$1.64 \times 10^{-5}$	$4.33 \times 10^{-3}$	$1.64 \times 10^{-2}$
m <sup>3</sup>	$1 \times 10^6$	3.53	$6.10 \times 10^4$	-----	$2.64 \times 10^2$	$1 \times 10^3$
US gal.	$3.79 \times 10^3$	$1.34 \times 10^{-1}$	$2.31 \times 10^2$	$3.79 \times 10^{-3}$	-----	3.79
L	$1 \times 10^3$	$3.54 \times 10^{-1}$	$6.10 \times 10^1$	$1 \times 10^{-3}$	$2.64 \times 10^{-1}$	-----

## Concentration

Concentration	Equivalent
1,000,000 ppm	100%
100,000 ppm	10%
10,000 ppm	1%
1,000 ppm	0.1%
100 ppm	0.01%
10 ppm	0.001%
1 ppm	0.0001%
1,000 ppb	1 ppm
100 ppb	0.1 ppm
10 ppb	0.001 ppm

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