Units, Conversion Tables, and Formulas

Pressure

FROM	TO	MULTIPLY BY	EXAMPLE
atm (atmosphere)	bar	1.01325	1.1 atm x 1.01325 = 1.115 bar
atm	MPa	0.10132	1.1 atm x 0.10132 = 0.111 MPa
atm	PSI	14.696	1.1 atm x 14.695 = 16.166 PSI
bar	atm	0.98692	10 bar x 0.98692 = 9.8692 atm
bar	MPa	0.1	10 bar x 0.1 = 1.0 MPa
bar	PSI	14.504	10 bar x 14.504 = 145 PSI
MPa (megapascal)	atm	9.8692	10 MPa x 9.8692 = 98.692 atm
MPa	bar	10	10 MPa x 10 = 100 bar
MPa	PSI	145.0	10 MPa x 145.0 = 1450 PSI
PSI (pounds / square inch)	atm	0.068	100 PSI x 0.068 = 6.80 atm
PSI	bar	0.0689	100 PSI x 0.0689 = 6.89 bar
PSI	MPa	0.00689	100 PSI x 0.00689 = 0.689 MPa

Flow

FROM	TO	MULTIPLY BY	EXAMPLE
CFM (cubic feet / minute)	l/min	28.32	100 CFM x 28.32 = 2832 l/min
CFM	l/s	0.472	100 CFM x 0.472 = 47.2 l/s
CFM	m^3/h	1.699	100 CFM x 1.699 = 169.9 m^3/h
l/min (liter / minute)	CFM	0.0353	100 l/min x 0.0353 = 3.5 CFM
l/min	l/s	0.0167	100 l/min x 0.0167 = 1.7 l/s
l/min	m^3/h	0.06	100 l/min x 0.06 = 6 m^3/h
l/s (liter / second)	CFM	2.119	10 l/s x 2.119 x 21.2 CFM
l/s	l/min	60	10 l/s x 60 = 600 l/min
l/s	m^3/h	3.6	10 l/s x 3.6 = 36 m^3/h
m^3/h (cubic meter / hour)	CFM	0.5885	10 m^3/h x 0.5885 = 5.885 CFM
m^3/h	l/min	16.667	10 m^3/h x 16.667 = 166.7 l/min
m^3/h	l/s	0.2777	10 m^3/h x 0.2777 = 2.777 l/s

Volume

FROM	TO	MULTIPLY BY	EXAMPLE
ft^3 (cubic foot)	gl UK	6.228	10 ft^3 x 6.228 = 62.28 gl UK
ft^3	gl U.S.	7.48	10 ft^3 x 7.48 = 74.8 gl U.S.
ft^3	l	28.32	10 ft^3 x 28.32 = 283.2 l
ft^3	m^3	0.0283	10 ft^3 x 0.0283 = 0.283 m^3
gl UK (gallon UK)	ft^3	0.1605	10 gl UK x 0.1605 = 1.605 ft^3
gl UK	gl U.S.	1.2009	10 gl UK x 1.2009 = 12.009 gl U.S.
gl UK	l	4.546	10 gl UK x 4.546 = 45.46 l
gl UK	m^3	0.0045	10 gl UK x 0.0045 = 0.045 m^3
gl U.S. (gallon U.S.)	ft^3	0.1336	10 gl U.S. x 0.1336 = 1.336 ft^3
gl U.S.	gl UK	0.8326	10 gl U.S. x 0.8326 = 8.326 gl UK
gl U.S.	l	3.785	10 gl U.S. x 3.785 = 37.85 l
gl U.S.	m^3	0.0037	10 gl U.S. x 0.0037 = 0.037 m^3
l (liter)	ft^3	0.0353	100 l x 0.0353 = 3.53 ft^3
l	gl UK	0.220	100 l x 0.220 = 22.0 gl UK
l	gl U.S.	0.264	100 l x 0.264 = 26.4 gl U.S.
l	m^3	0.001	100 l x 0.001 = 0.1 m^3
m^3 (cubic meter)	ft^3	35.3	10 m^3 x 35.3 = 353 ft^3
m^3	gl UK	219.96	10 m^3 x 219.96 = 2199.6 gl UK
m^3	gl U.S.	264.17	10 m^3 x 264.17 = 2641.7 gl U.S.
m^3	l	1000	10 m^3 x 1000 = 10 000 l

Force

FROM	TO	MULTIPLY BY	EXAMPLE
lbf (pound force)	kp	0.454	10 lbf x 0.454 = 4.54 kp
lbf	N	4.448	10 lbf x 4.448 = 44.48 N
kp (kilogram force)	lbf	2.205	10 kp x 2.205 = 22.05 lbf
kp	N	9.806	10 kp x 9.806 = 98.06 N
N (newton)	lbf	0.2248	10 N x 0.2248 = 2.25 lbf
N	kp	0.1020	10 N x 0.1020 = 1.02 kp

Length

FROM	TO	MULTIPLY BY	EXAMPLE
ft (foot)	inch	12	10 ft x 12 = 120 inch
ft	m	0.3048	10 ft x 0.3048 = 3.048 m
ft	mm	304.8	10 ft x 304.8 = 3048 mm
inch	ft	0.0833	10 inch x 0.0833 = 0.833 ft
inch	m	0.0254	10 inch x 0.0254 = 0.254 m
inch	mm	25.4	10 inch x 25.4 = 254 mm
m (meter)	ft	3.28083	10 m x 3.28083 = 32.8083 ft
m	inch	39.3699	10 m x 39.3699 = 393.699 inch
m	mm	1000	10 m x 1000 = 10 000 mm
mm (millimeter)	ft	0.00328	10 mm x 0.00328 = 0.0328 ft
mm	inch	0.0393	10 mm x 0.0393 = 0.393 inch
mm	m	0.001	10 mm x 0.001 = 0.01 m

Mass

FROM	TO	MULTIPLY BY	EXAMPLE
g (gram)	kg	0.001	10 g x 0.001 = 0.01 kg
g	lb	0.0022	10 g x 0.0022 = 0.022 lb
g	oz	0.0352	10 g x 0.0352 = 0.352 oz
kg (kilogram)	g	1000	10 kg x 1000 = 10 000 g
kg	lb	2.205	10 kg x 2.205 = 22.05 lb
kg	oz	35.273	10 kg x 35.273 = 352.73 oz
lb (pound)	g	453.9	10 lb x 453.9 = 4539 g
lb	kg	0.4539	10 lb x 0.4539 = 4.539 kg
lb	oz	16	10 lb x 16 = 160 oz
oz (ounce)	g	28.349	10 oz x 28.349 = 283.49 g
oz	kg	0.0283	10 oz x 0.0283 = 0.283 kg
oz	lb	0.0625	10 oz x 0.0625 = 0.625 lb

Torque

FROM	TO	MULTIPLY BY	EXAMPLE
kpm (kilo pound meter)	lbfft	7.233	10 kpm x 7.233 = 72.33 lbfft
kpm	Nm	9.81	10 kpm x 9.81 = 98.1 Nm
lbfft (pound force foot)	Nm	1.356	10 kpm x 1.356 = 13.56 Nm
lbfft	Nm	0.1383	10 kpm x 0.1383 = 1.38 kpm
Nm (newton meter)	kpm	0.1020	10 Nm x 0.1020 = 1.02 kpm
Nm	lbfft	0.7376	10 Nm x 0.7376 = 7.38 lbfft

Equivalent Chart for Hose and Hose Fittings

Hose Size

Inner Dia. x Outer Dia. in mm	Inner Dia. x Outer Dia. in inch	U.S. Nominal
5 x 8	0.196 x 0.314	3/16" (0.1875 inch)
6.5 x 10	0.255 x 0.393	1/4" (0.250 inch)
8 x 12	0.314 x 0.472	5/16" (0.3125 inch)
9.5 x 13.5	0.374 x 0.531	3/8" (0.375 inch)
11 x 16	0.433 x 0.630	7/16" (0.4375 inch)

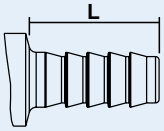
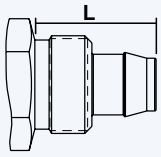
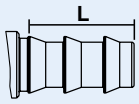
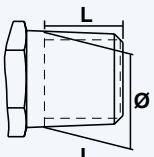
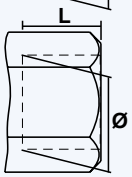
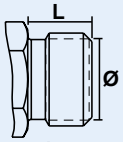
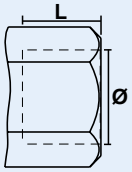
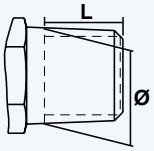
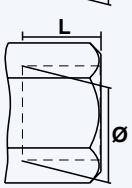
Hose Connection Size

Connection Size in mm	Connection Size in inch	U.S. Nominal
6.3	0.248	1/4" (0.250 inch)
10	0.393	3/8" (0.375 inch)
13	0.512	1/2" (0.5 inch)
16	0.630	5/8" (0.625 inch)
19	0.748	3/4" (0.75 inch)

Recommended Hose Dimension

	Working Length 4 m	Working Length 6 m	Working Length 10 m	Working Length >20 m
Required Flow <200 l/min	5 x 8 mm	6.5 x 10 mm	6.5 x 10 mm	8 x 12 mm
Required Flow <400 l/min	6.5 x 10 mm	8 x 12 mm	8 x 12 mm	9.5 x 13.5 mm
Required Flow <600 l/min	8 x 12 mm	8 x 12 mm / 11 x 6 mm	11 x 16 mm	11 x 16 mm / 13 x 18 mm

Connections and Thread Standards

		Connection	Ø (mm)	L (mm)
Hose Connection Standard hose barb for hose clamp		6.3 mm (1/4") 8 mm (5/16") 10 mm (3/8") 13 mm (1/2") 16 mm (5/8")	- - - - -	18.0 18.0 21.0 21.0 23.0
Stream-Line Connection Hose barb with nut cap for reusable and safe hose clamping		5 x 8 mm 6.5 x 10 mm 8 x 12 mm 9.5 x 13.5 mm 11 x 16 mm	- - - - -	15.0 17.0 19.0 21.0 25.0
CEJN-Lock Connection For special non-clamping hose		1/4" 3/8" 1/2"	- - -	19.0 23.0 26.0
R/Rc Thread Connection Conical Pipe Thread Connection According to ISO 7/1 (Other common descriptions are BSPT, Kr) *Male:* *ie. R 1/4"* *Female:* *ie. Rp 1/4" (parallel)* *ie. Rc 1/4" (taper)*	 	**Male Thread** R 1/8" R 1/4" R 3/8" R 1/2" R 3/4" **Female Thread** Rc 1/8" Rc 1/4" Rc 3/8" Rc 1/2" Rc 3/4"	 10.2 13.6 17.2 21.7 27.1 8.3 11.0 14.5 18.0 23.5	 7.4 11.0 11.0 15.0 16.3 7.4 11.0 11.4 15.0 16.3
G Thread Connection Cylindrical Pipe Thread Connection According to ISO 228/1 (Other common descriptions are BSP, R) *Male:* *ie. G 1/4"* *Female (ISO 1179):* *ie. G 1/4"*	 	**Male Thread** G 1/8" G 1/4" G 3/8" G 1/2" G 3/4" **Female Thread** G 1/8" G 1/4" G 3/8" G 1/2" G 3/4"	 9.6 13.0 16.5 20.8 26.3 8.75 11.8 15.25 19.0 24.5	 8.0 10.0 10.0 12.0 12.0 7.4 11.0 11.4 15.0 16.3
NPT Thread Connection National Pipe Thread American standard according to ANSI/ASME B 1.20.1 *Male and female:* *ie. 1/4" NPT*	 	**Male Thread** NPT 1/8" NPT 1/4" NPT 3/8" NPT 1/2" NPT 3/4" **Female Thread** NPT 1/8" NPT 1/4" NPT 3/8" NPT 1/2" NPT 3/4"	 10.5 14.0 17.5 21.8 27.1 8.5 11.0 14.5 18.0 23.0	 6.7 10.2 10.4 13.6 13.9 6.9 10.0 10.3 13.6 14.1

Quick Reference Guide

CEJN SERIES	141	220	300	303	310	315	320	342	408	410	430	442	550
CEJN Original Profile	●	●					●	●		●		●	
Standards													
ARO 210 Standard			●										
A-A 59439* / ISO 6150 B					●						●		●
Eurostandard						●			●				
Asian Standard						●							
Body Size	N/A	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	1/2"
Flow Diameter (mm)	2.5	5.0	5.5	6.5	5.3	7.5	7.6	7.4	9.5	10.4	9.5	10.4	11.0
Max Working Pressure (bar)**	10	35	16	16	16	16	16	35	16	16	16	35	16
Air Flow (l/min)** ***	80	580	1050	1450	925	1950	2100	1950	3450	3900	2350	3950	3750
Suitable for Vacuum Service	●	●		●					●				
Pre-applied Thread Sealant			●	●	●	●	●	●					
Multi-Link Version			●		●		●						
Integrated Soft-Line Version			●		●		●						
Safety Versions													
Vented safety coupling (ISO 4414)			●		●		●			●			●
Anti-hose whip nipple			●	●	●	●	●	●	●	●	●	●	●
Safety lock								●				●	
Connections													
Stream-Line connection			●	●	●	●	●	●	●	●	●		
CEJN-Lock connection					●		●						
Hose connection	●	●	●	●	●	●	●	●	●	●	●	●	●
Male thread	●	●	●	●	●	●	●	●	●	●	●	●	●
Female thread	●	●	●	●	●	●	●	●	●	●	●	●	●
Operation													
One-hand connection	●	●	●	●	●	●	●	●	●	●	●	●	●
One-hand disconnection	●	●	●	●	●	●	●		●	●	●		●
Two-hand disconnection								●				●	
Temperature Ranges**													
-30°C to +100°C	●	●						●				●	
-20°C to +100°C			●	●	●	●	●		●	●	●		●
Coupling Materials													
Brass	●	●											
Steel/Brass			●	●	●	●	●	●	●	●	●	●	●
Nickel plating		●											
Chrome plating	●												
Zinc plating			●	●	●	●	●	●	●	●	●	●	●
Nipple Materials													
Steel		●	●	●	●	●	●	●	●	●	●	●	●
Brass	●												
Zinc plating		●	●	●	●	●	●	●	●	●	●	●	●
Chrome plating	●												
Seal Material													
NBR (Nitrile rubber)	●	●	●	●	●	●	●	●	●	●	●	●	●
Tool Flow Requirements													
< 100 l/min	●												
< 300 l/min													
< 600 l/min													
< 900 l/min													
< 1200 l/min													
< 1500 l/min													
< 1800 l/min													
< 2100 l/min													
< 2400 l/min													
< 2700 l/min													
< 3000 l/min													
< 3300 l/min													
< 3600 l/min													

Former U.S. Standard MIL C 4109 1/4". **Technical data for vented safety version may differ from standard version. * With inlet pressure 6 bar at ∆p 0.5).*