

Flowrate Conversions in DLL file

1 Introduction

The conversion DLL file of unit Flowrate is written in C/C++ programming language style, and do not require any extra code in using this DLL file. This DLL file includes 2 functions to handle the Flowrate conversions as follow:

```
double LP_UnitConversionsFlowrate_GetLeftValue (char* LeftUnit, char* RightUnit, double RightValue) ;
double LP_UnitConversionsFlowrate_GetRightValue(char* LeftUnit, char* RightUnit, double LeftValue ) ;
```

2 Problems in Flowrate conversion

The two functions in DLL file are used to handle all Flowrate conversions in two problems.

Problem 1 The unknown value is on the **left hand side** of equation

This problem in conversions is described in the figure:

$$\begin{array}{ccccccc} \text{left value} & \text{left unit} & & \text{right value} & \text{right unit} & & \\ \swarrow & \swarrow & & \swarrow & \swarrow & & \\ x & \text{ft}^3/\text{h} & = & 10.4 & \text{cm}^3/\text{s} & & \end{array}$$

The value x is obtained by either one of two methods:

- Method A : The code is :

```
double x ;
x = LP_UnitConversionsFlowrate_GetLeftValue("CubicFootPerHour", "CubicCentimeterPerSecond", 10.4);
```

- Method B : The code is :

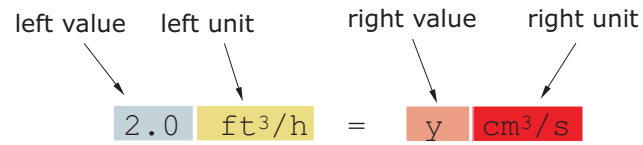
```
char LeftUnit[] = "CubicFootPerHour" ;
char RightUnit[] = "CubicCentimeterPerSecond" ;
```

```
double RightValue = 10.4 ;
```

```
double x = LP_UnitConversionsFlowrate_GetLeftValue(LeftUnit, RightUnit, RightValue);
```

Problem 2 The unknown value is on the **right hand side** of equation

This problem in conversions is described in the figure:



The value y is obtained by either one of two methods:

- Method A : The code is :

```
double y ;
y = LP_UnitConversionsFlowrate_GetRightValue("CubicFootPerHour", "CubicCentimeterPerSecond", 2.0) ;
```

- Method B : The code is :

```
char LeftUnit[] = "CubicFootPerHour" ;
char RightUnit[] = "CubicCentimeterPerSecond" ;

double LeftValue = 2.0 ;

double y = LP_UnitConversionsFlowrate_GetRightValue(LeftUnit, RightUnit, LeftValue) ;
```

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3 Unit names in Flowrate conversions

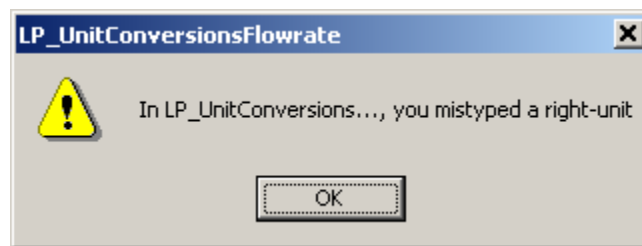
You can choose the unit name (case sensitive) in the following table for parameters, LeftUnit and/or RightUnit

BarrelUSPetroleumPerHour	CubicMeterPerHour
BarrelUSPetroleumPerDay	CubicMeterPerDay
BarrelUSPetroleumPerYear	CubicMeterPerYear
BarrelUKPerHour	CubicInchPerSecond
BarrelUKPerDay	CubicInchPerMinute
BarrelUKPerYear	CubicInchPerHour
CubicMillimeterPerSecond	CubicFootPerSecond
CubicMillimeterPerMinute	CubicFootPerMinute
CubicCentimeterPerSecond	CubicFootPerHour
CubicCentimeterPerMinute	CubicFootPerDay
CubicCentimeterPerHour	USGallonPerSecond
MilliliterPerSecond	USGallonPerMinute
MilliliterPerMinute	USGallonPerHour
MilliliterPerHour	USGallonPerDay
LiterPerSecond	USGallonPerYear
LiterPerMinute	UKGallonPerSecond
LiterPerHour	UKGallonPerMinute
LiterPerDay	UKGallonPerHour
CubicMeterPerSecond	UKGallonPerDay
CubicMeterPerMinute	UKGallonPerYear

When your unit name is not in this table, the returns of functions are -1 and the error message will issue as shown in the following figures:



or



4 Tip

1. The parameters in two functions have the same order of unit name (LeftUnit is first and RightUnit is second) and the last parameter is the known value.
2. Use function `LP_UnitConversionsFlowrate_GetLeftValue(..)` if your **unknown** value is on the **left hand side** of the equation.
3. Use function `LP_UnitConversionsFlowrate_GetRightValue(..)` if your **unknown** value is on the **right hand side** of the equation.