

# NAG Library Function Document

## nag\_real\_safe\_small\_number (X02AMC)

### 1 Purpose

nag\_real\_safe\_small\_number (X02AMC) returns the **safe range** of floating-point arithmetic.

### 2 Specification

```
#include <nag.h>
#include <nagx02.h>
double nag_real_safe_small_number
```

### 3 Description

nag\_real\_safe\_small\_number (X02AMC) is a constant defined in the C Header file.

nag\_real\_safe\_small\_number (X02AMC) is defined to be the smallest positive model number  $z$  such that for any  $x$  in the range  $[z, 1/z]$  the following can be computed without undue loss of accuracy, overflow, underflow or other error:

$-x$   
 $1/x$   
 $-1/x$   
 $\sqrt{x}$   
 $\log(x)$   
 $\exp(\log(x))$   
 $y^{(\log(x)/\log(y))}$  for any  $y$

### 4 References

None.

### 5 Arguments

None.

### 6 Error Indicators and Warnings

None.

### 7 Accuracy

None.

### 8 Parallelism and Performance

Not applicable.

## **9 Further Comments**

None.

## **10 Example**

None.

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