

NAG Toolbox for MATLAB

g05ye

1 Purpose

g05ye initializes the Sobol generator. It must be called before using g05yf and is required if a Sobol sequence is wanted from g05yj or g05yk.

2 Syntax

```
[iref, ifail] = g05ye(idim, iskip)
```

3 Description

g05ye places vital initialization information into the array **iref** for subsequent use by the generator functions.

4 References

None.

5 Parameters

5.1 Compulsory Input Parameters

1: **idim** – int32 scalar

the number of dimensions required.

Constraint: $1 \leq \text{idim} \leq 40$.

2: **iskip** – int32 scalar

The number of terms of the sequence to skip on initialization.

Constraint: $\text{iskip} \leq 2^{15}$.

5.2 Optional Input Parameters

None.

5.3 Input Parameters Omitted from the MATLAB Interface

None.

5.4 Output Parameters

1: **iref(2000)** – int32 array

Contains initialization information for use with the generator functions. **iref** should not be altered in any way between initialization and calls of the generator functions.

2: **ifail** – int32 scalar

0 unless the function detects an error (see Section 6).

6 Error Indicators and Warnings

Errors or warnings detected by the function:

ifail = 1

On entry, **idim** < 1 or **idim** > 40.

ifail = 2

The value of **iskip** > 2¹⁵.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

```
idim = int32(15);
iskip = int32(20);
n = int32(2);
[iref, ifail] = g05ye(idim, iskip);
[quasi, irefOut, ifail] = g05yf(n, iref)
```

```
quasi =
  Columns 1 through 7
    0.9688    0.5938    0.9688    0.7812    0.1562    0.2188    0.1562
    0.7188    0.3438    0.7188    0.0312    0.4062    0.9688    0.4062
  Columns 8 through 14
    0.9688    0.4062    0.0312    0.5312    0.9688    0.4688    0.7812
    0.2188    0.6562    0.2812    0.2812    0.7188    0.7188    0.5312
  Columns 15 through 16
    0.9062    0.1562
    0.1562    0.4062
irefOut =
    array elided
ifail =
    0
```