

NAG Toolbox for MATLAB

g05yf

1 Purpose

g05yf generates a sequence of quasi-random numbers using Sobol's method. It must be preceded by a call to g05ye to initialize the generator for **idim** dimensions.

2 Syntax

```
[quasi, iref, ifail] = g05yf(n, iref)
```

3 Description

g05yf generates a sequence of **n** quasi-random numbers of dimension **idim** using Sobol's method.

4 References

None.

5 Parameters

5.1 Compulsory Input Parameters

- 1: **n** – **int32** scalar
the number of quasi-random numbers required.
Constraint: $n \geq 1$.
- 2: **iref(2000)** – **int32** array
Contains vital information for the generator.

5.2 Optional Input Parameters

None.

5.3 Input Parameters Omitted from the MATLAB Interface

None.

5.4 Output Parameters

- 1: **quasi(n,*)** – **double** array
The first dimension of the array **quasi** must be at least 1
The second dimension of the array must be at least **idim** + 1 if **idim** must be odd, and at least **idim** otherwise
Contains **n** quasi-random numbers of dimension **idim**.
- 2: **iref(2000)** – **int32** array
Updated information for the generation of a further set of quasi-random numbers.
iref must not be changed between calls of g05yf.

3: **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

Incorrect initialization. g05ye must be called prior to g05yf and **iref** must remain unaltered after this call.

ifail = 2

There have been too many calls to the generator. It is not able to deliver any more random numbers.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

```
idim = int32(15);
iskip = int32(20);
n = int32(2);
[iref, ifail] = g05ye(idim, iskip);
if (ifail == 0)
    [quasi, irefOut, ifail] = g05yf(n, iref);
end
```