Code_Aster

Titre : Opérateur CALC_MAC3COEUR
Responsable : Roméo FERNANDES

Version
default

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Clé : U4.90.11   Révision : 10478

Operator `CALC_MAC3COEUR`

1   Drank

Macro-command dedicated to the fuel assemblies. The goal is to evaluate:
- either strain of the fuel assemblies subjected to loadings thermal, hydraulics and neutronics
- or water interassemblies blades at the beginning of cycle of an engine.

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2 Syntax

```
U = CALC_MAC3COEUR    (

♦TYPE_COEUR=type          of heart to treating              [K]
                   /"MONO",
                   /"TEST",
                   /"900",
                   /"1300",
                   /"N4",
                   /"EPR",
```

Counts containing information of the engine to the cycle N
♦/TABLE_N=   [array]

Mesh of the engine to the cycle N
♦/MAILLAGE_N=   [mesh]

◊DEFORMATION=_F   (

               Result containing initial state
               ◊/RESU_INIT=   [result]
               Unit of the file containing loading THYC
               ♦/UNITE_THYC=   [I]

               Value of the fluence to reach
               ♦/NIVE_FLUENCE=   [R]

      # 1. case of a heart multi-assembly (TYPE_COEUR " MONO" ≠)
               Standard of the force of maintenance
               ◊/TYPE_MAINTIEN=/   "DEPL_PSC"   [DEFAULT]

      # 2. cases of a heart mono-assembly (TYPE_COEUR = "MONO")
               Standard of the force of maintenance
               ♦/TYPE_MAINTIEN=/   "DEPL_PSC"
                                      / "FORCE"
               Value of the gripping force if TYPE_MAINTIEN = "FORCE"
               ◊/FORCE_MAINTIEN=   [R]
         ),

◊LAME=_F   (

               Array containing information of the engine to the cycle $N+1$
               ♦/TABLE_NP1=   [array]

               Mesh of the engine to the cycle $N+1$
               ♦/MAILLAGE_NP1=   [mesh]
)

U is of evol_noli type.

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3   Operands

3.1   Operand TYPE_COEUR

Name of the type of heart to treating.

Case "TEST" represents a fictitious heart with five fuel assemblies, laid out out of system.
The "MONO" case represents an assembly alone (either a fictitious heart mono-assembly, without taking into account of the contact with the internal reactor vessels).

3.2   Operand TABLE_N

Counts containing the information of the assemblies (position, design and strain mainly) at the end of the cycle N.

3.3   Operand MAILLAGE_N

Mesh corresponding to the description of the heart to the cycle N.

3.4   Operand DEFORMATION

Factor key word which specifies that the macro-command is used here to compute: the strains of the fuel assemblies in configuration heart.

3.4.1   Operand RESU_INIT

Possibility of giving result in initial state. This key word is useful in the case of realization of several cycles of irradiation.

3.4.2   Operand UNITE_THYC

Unit in which is given file THYC as starter of CALC_MAC3COEUR containing the axial and transverse hydraulic loadings.

3.4.3   Operand NIVE_FLUENCE

Value of the fluence to be reached (in $10^{24} neutrons/m^2$).

3.4.4   Operand TYPE_MAINTIEN

In the case of hearts multi-assemblies ("MONO" ≠), this key word is optional and authorizes only value "DEPL_PSC" (value by default) clarified below. The force of maintenance is then generated by the displacement imposed by the Plate Superior of Heart (PSC) on the system of maintenance of each assembly. The value of this displacement is indicated in the file datg of each heart considered

In the case mono-assembly ("MONO"), key word TYPE_MAINTIEN is compulsory, without default value
, and can take values "DEPL_PSC" or "FORCE":

•"DEPL_PSC": the force of maintenance then is generated by a displacement imposed as described above; in this case key word FORCE_MAINTIEN is not expected;

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•"FORCE", the force of maintenance is then introduced by an imposed force fixes whose value is given by key word FORCE_MAINTIEN. This option makes it possible to accurately reproduce the experimental tests which are in particular used to readjust the model.

3.4.5 Operand FORCE_MAINTIEN

In the case mono-assembly , this key word makes it possible to provide the value (in Newton N) of the gripping force in case TYPE_MAINTIEN=' FORCE'.

3.5 Operand LAME

Factor key word which specifies that the macro-command is used here to determine the water blades at the beginning of cycle $N+1$ from a made up heart deformed assemblies.

3.5.1 Operand TABLE_NP1

Counts containing the information of the assemblies (position, design and strain mainly) at the end of the cycle $N+1$.

3.5.2 Operand MAILLAGE_NP1

Mesh corresponding to the description of the heart to the cycle $N+1$.