

Structure of Data sd_melasflu

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1 General information

The structure of data sd_melasflu store the relative data with a calculation of fluid interaction - structure.

2 Tree structure of the Structure of Data

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sd_melasflu (K8):
  ◆ '' : sd_melasflu19
  ◇ '.VEN' : OJB S V R
    '.VCN' : OJB S V R
  ◆ '' : sd_table
  ◇ '' : sd_l_table

sd_melasflu19 (K19):
  ◆ '.REMF' : OJB S V K8 long=2
  ◆ '.DESC' : OJB S V K16 long=1
  ◆ '.FACT' : OJB S V R
  ◆ '.FREQ' : OJB S V R
  ◆ '.MASG' : OJB S V R
  ◆ '.NUMO' : OJB S V I
  ◆ '.VITE' : OJB S V R
```

3 Contents of the objects JEVEUX

The dimensioning and the presence of the objects depend on:

nbmode	many modes of the modal base (length of . NUMO)
nbvite	many points of discretization of the interval speed fluid (length of . QUICKLY)
typeflu	type of flow pattern (FAISCEAU_TRANS , FAISCEAU_AXIAL , ...)
coupling	taking into account of the coupling fluid-structure (YES / NOT)

3.1 Object .REMF

`.REMF' : S V K8 long=2

V (1)	name of the concept of the type sd_type_flui_stru used for calculation
V (2)	name of the modal base (standard sd_mode_meca) used for calculation

3.2 Object .NUMO

`.NUMO' : S V I long=nbmode

V (imode)	imode ^{ème} sequence number of the modal base which takes part in calculation
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3.3 Object .VITE

`\.VITE' : S V I long=nbvite`

V (*)	discretization fluid speed
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3.4 Object .DESC

`\.DESC' : S V K16 long=1`

V (1)	'DEPL'
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Notice :
| this object is useless.

3.5 Object .FACT

`\.FACT' : S V R`

If FAISCEAU_TRANS: ⇒ long=3*nbvite*nbmode	
V (imode, ipoint, 1)	Pseudonym factor of participation in the direction OX for ipoint ^{ème} speed and for imode ^{ème} mode
V (imode, ipoint, 2)	Pseudonym factor of participation in the direction OY for ipoint ^{ème} speed and for imode ^{ème} mode
V (imode, ipoint, 3)	Pseudonym factor of participation in the direction OZ for ipoint ^{ème} speed and for imode ^{ème} mode

If not: ⇒ long=3*nbmode	
V (imode, 1)	Pseudonym factor of participation in the direction OX for imode ^{ème} mode
V (imode, 2)	Pseudonym factor of participation in the direction OY for imode ^{ème} mode
V (imode, 3)	Pseudonym factor of participation in the direction OZ for imode ^{ème} mode

3.6 Object .FREQ

`\.FREQ' : S V R long=2*nbmode*nbpoint`

V (imode, ipoint, 1)	frequency of imode ^{ème} mode disturbed by the flow for ipoint ^{ème} speed of the fluid
V (imode, ipoint, 2)	damping of imode ^{ème} mode disturbed by the flow for ipoint ^{ème} speed of the fluid

Note:
| Damping becomes negative at the speed of instability fluid-rubber band.

Code_Aster

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3.7 Object .MASG

\.MASG' : S V R

If FAISCEAU_TRANS * ⇒ long=nbvite*nbmode	
V (imode, ipoint)	mass generalized of imode ^{ème} mode for ipoint ^{ème} speed of the fluid

If not: ⇒ long=nbmode	
V (imode)	mass generalized of imode ^{ème} mode

3.8 Objects .VCN and .VEN

\.VCN' : S V R long=nbmode*nbconnors
\.VEN' : S V R long=nbmode

nbconnors corresponds to the number of points of discretization of the value of the constant of Connors cumulated for all the zones.

Objects .VCN and .VENN exist only if:

FAISCEAU_TRANS + coupling = YES + BASE_MODELE/AMOR_REDUI_CONN

V (imode, iconnors)	value critical velocity calculated for imode ^{ème} mode and for iconnors ^{ème} value of the constant of Connors.
V (imode)	value the effective speed of imode ^{ème} mode

3.9 Structure of data sd_table

Concept of the type sd_table container only one parameter NOM_CHAM. It contains the name of all them sd_cham_no the modal displacements disturbed by the flow.

3.10 Structure of data sd_1_table

This structure of data exists only in the case of a configuration FAISCEAU_AXIAL.

This sd_1_table only one contains sd_table under the name MATR_GENE.

This sd_table have the following parameters:

- NUME_VITE list of enteties describing the list of the numbers the speed of the fluid,
- VITE_FLUI describing the value the speed of the fluid,
- MATR_MASS for the various generalized matrices of mass (one by speed of fluid),
- MATR_AMOR for the various generalized matrices of damping (one by speed of fluid)
- MATR_RIGI for the various generalized matrices of rigidity (one by speed of fluid)

One stores also one NUME_DDL_GENE commun run with all these matrices. It NUME_DDL_GENE the form has (K8) .NUXXX where it XXX is determined by GNOMSD. The name of the concept is thus based on the name user of the concept sd_melasflu but is also stored in the concept of the generalized matrices.

The same remark also applies for `cham_no` stored in the table. They have one `PROF_CHNO` jointly.