Documentation of the sizes of *Code_Aster*

Summary:

Description of the sizes associated with the fields being able to be created by the orders of *Code_Aster*.

The following table has three columns. The name of the sizes appears in the left-hand column (classified alphabetically).
Each size is separated from following by a white line.

On the first line of a size, one finds the type of this size (reality: R, complex: C ,…)

One lists then the names of the components of this size (column 2) and one makes a small comment on each one of them.

CORR_R	Type: R	Corrosion
CORR_R	CORR	Corrosion
CRRU_R	Type: R	Criteria of rupture for the hulls multi-layer composites
CRRU_R	SIGL	Constraint according to the 1st direction of orthotropism
CRRU_R	SIGT	Constraint according to the 2nd direction of orthotropism
CRRU_R	SIGLT	Shear stress
CRRU_R	CRIL	Criterion of rupture according to the first direction of orthotropism
CRRU_R	CRIT	Criterion of rupture according to the second direction of orthotropism
CRRU_R	CRILT	Criterion of rupture in following shearing LT
CRRU_R	CRITH	Criterion of Tsai-Hill
DBEL_R	Type: R	Acoustic decibel
DBEL_R	DB	Decibel
DEPL_C	Type: C	See DEPL_R
DEPL_R	Type: R	Displacement (unknown for the mechanical phenomenon)
DEPL_R	DX	translation according to OX
DEPL_R	DY	translation according to OY
DEPL_R	DZ	translation according to OZ
DEPL_R	DRX	rotation around OX
DEPL_R	DRY MARTINI	rotation around OY
DEPL_R	DRZ	rotation around OZ
DEPL_R	GRX	warping (for an element of beam)
DEPL_R	NEAR	Degree of freedom of pressure
DEPL_R	TEMP	Degree of freedom of temperature
DEPL_R	PHI	Angle of cracking
DEPL_R	DH	Hydraulic diameter
DEPL_R	GONF	Swelling for the quasi-incompressible elements
DEPL_R	UI2	Warping and ovalization in mode 2 for the pipes
DEPL_R	VI2	Warping and ovalization in mode 2 for the pipes
DEPL_R	WI2	Warping and ovalization in mode 2 for the pipes
DEPL_R	…	…
DEPL_R	UI3	Warping and ovalization in mode 3 for the pipes
DEPL_R	VI3	Warping and ovalization in mode 3 for the pipes
DEPL_R	WI3	Warping and ovalization in mode 3 for the pipes
DEPL_R	…	…
DEPL_R	D1	Projection of the translation on the vector D1X, D1Y, D1Z
DEPL_R	D2	Projection of the translation on the vector D2X, D2Y, D2Z
DEPL_R	D3	Projection of the translation on the vector D3X, D3Y, D3Z
DEPL_R	D1X, D1Y, D1Z	Components according to $X\,Y\,Z$ of a vector (see D1)
DEPL_R	D2X, D2Y, D2Z	Components according to $X\,Y\,Z$ of a vector (see D2)

DEPL_R	D3X, D3Y, D3Z	Components according to $X\,Y\,Z$ of a vector (see D3)
DEPL_R	PTOT	Total pressure of fluid in THM
DERA_R	Type: R	local indicators of discharge and loss of radiality
DERA_R	DCHA_V	local indicator of total discharge with the diverter of the constraints
DERA_R	DCHA_T	local indicator of total discharge with the total constraints
DERA_R	IND_DCHA	loadmeter (1.2) or discharges (- 1 rubber band, -2 plasticization if kinematic work hardening) for VMIS_ISOT_*
DERA_R	VAL_DCHA	value of the abusive discharge (one would have plasticized with a kinematic work hardening)
DERA_R	X11	kinematic tensor uses for the calculation of IND_DCHA and VAL_DCHA
DERA_R	X22	kinematic tensor uses for the calculation of IND_DCHA and VAL_DCHA
DERA_R	X33	kinematic tensor uses for the calculation of IND_DCHA and VAL_DCHA
DERA_R	X12	kinematic tensor uses for the calculation of IND_DCHA and VAL_DCHA
DERA_R	X13	kinematic tensor uses for the calculation of IND_DCHA and VAL_DCHA
DERA_R	X23	kinematic tensor uses for the calculation of IND_DCHA and VAL_DCHA
DERA_R	RADI_V	indicator of loss of radiality with the standard of Von Mises (deviative)
DERA_R	ERR_RADI	indicator of error of integration due to the non-radiality
DURT_R	Type: R	Initialization of the calculation of hardness associated with the metallurgy
DURT_R	HV	value of hardness
ENER_R	Type: R	energy
ENER_R	TOTAL	total energy of the element
ENER_R	TRAC_COM	energy in traction and compression
ENER_R	TORSION	energy in torsion
ENER_R	MEMBRANE	energy out of membrane
ENER_R	INFLECTION	energy in inflection
ENER_R	FLEX_Y	energy in inflection Y
ENER_R	FLEX_Z	energy in inflection Z
ENER_R	PLAN_XY	energy in the plan XY
ENER_R	PLAN_XZ	energy in the plan XZ
ENER_R	DX	energy according to DX
ENER_R	DY	energy according to DY
ENER_R	DZ	energy according to DZ
ENER_R	DRX	energy according to DRX
ENER_R	DRY MARTINI	energy according to DRY
ENER_R	DRZ	energy according to DRZ
EPSI_R	Type: R	Deformation
EPSI_R	EPXX	ε_{xx} deformation of a continuous medium
EPSI_R	EPYY	ε_{yy} deformation of a continuous medium
EPSI_R	EPZZ	ε_{zz} deformation of a continuous medium
EPSI_R	EPXY	ε_{xy} deformation of a continuous medium
EPSI_R	EPXZ	ε_{xz} deformation of a continuous medium
EPSI_R	EPYZ	ε_{yz} deformation of a continuous medium
EPSI_R	EXX	hull: generalized deformations
EPSI_R	EYY	hull: generalized deformations
EPSI_R	EXY	hull: generalized deformations
EPSI_R	KXX	hull: generalized deformations

EPSI_R	KYY	hull: generalized deformations
EPSI_R	KXY	hull: generalized deformations
EPSI_R	GAX	hull: generalized deformations
EPSI_R	GAY	hull: generalized deformations
EPSI_R	EPX	beam: elongation according to the axis of the beam
EPSI_R	KY	beam: curve according to the axis Y
EPSI_R	KZ	beam: curve according to the axis Z
EPSI_R	INVA_2	second invariant of the tensor of deformation
EPSI_R	PRIN_1	principal deformation of the tensor direction 1
EPSI_R	PRIN_2	principal deformation of the tensor direction 2
EPSI_R	PRIN_3	principal deformation of the tensor direction 3
EPSI_R	INVA_2SG	second signed invariant of the tensor of deformation
EPSI_R	DIVU	Voluminal deformation in THM
ERRE_R	Type: R	Error analysis of discretization
ERRE_R	ERREST	absolute error in mechanics estimated on the element
ERRE_R	NUEST	relative error in mechanics estimated on the element
ERRE_R	SIGCAL	energy of the constraints normalizes on the element
ERRE_R	TERMRE	absolute error of the voluminal term in mechanics estimated on the element
ERRE_R	TERMR2	relative error of the voluminal term in mechanics estimated on the element
ERRE_R	TERMNO	absolute error of the normal term in mechanics and thermics estimated on the element
ERRE_R	TERMN2	relative error of the normal term in mechanics estimated on the element
ERRE_R	TERMSA	absolute error of the term of jump in mechanics and thermics estimated on the element
ERRE_R	TERMS2	relative error of the term of jump in mechanics and thermics estimated on the element
ERRE_R	TERMS1	term of standardisation of the term of jump in thermics
ERRE_R	ERTABS	absolute error for thermics
ERRE_R	ERTREL	relative error for thermics
ERRE_R	TERMVO	absolute error of the voluminal term in thermics estimated on the element
ERRE_R	TERMV2	relative error of the voluminal term in thermics estimated on the element
ERRE_R	TERMV1	term of standardisation of the voluminal term in thermics
ERRE_R	TERMFL	absolute error of the term of flow in thermics estimated on the element
ERRE_R	TERMF2	relative error of the term of flow in thermics estimated on the element
ERRE_R	TERMF1	term of standardisation of the term of flow in thermics
ERRE_R	TERMEC	absolute error of the term of exchange in thermics estimated on the element
ERRE_R	TERME2	relative error of the term of exchange in thermics estimated on the element
ERRE_R	TERME1	term of standardisation of the term of exchange in thermics
ERRE_R	ESTERG1	1st estimate of the total error (stability)
ERRE_R	ESTERG2	2nd estimate of the total error (duality)
ERRE_R	ERHMME_L	error in residue in space for hm - mechanical equation - local in time
ERRE_R	ERHMMEDL	error in residue in space for hm - derived mechanical equation - local in time
ERRE_R	ERHMHY_L	error in residue in space for hm - hydraulic equation - local in time for the stationary one - indicator not boosted
ERRE_R	ERHMME_G	error in residue in space for hm - mechanical equation - total in time
ERRE_R	ERHMMEDG	error in residue in space for hm - derived mechanical equation - total in time
ERRE_R	ERHMHY_G	error in residue in space for hm - hydraulic equation - total in time for the stationary one - boosted indicator
ERRE_R	ERRETPS	error in residue in time
ERRE_R	SIZE	size of the meshs
FACY_R	Type: R	Size related to tiredness with great numbers of cycles, multiaxial loading
FACY_R	DTAUM1	first value of the half-amplitude max of shearing in the critical plan
FACY_R	VNM1X, Y,	components of the normal vector to the plan criticizes correspondent with

	Z	$dtaum1$
FACY_R	SINMAX1	normal maximum constraint with the plan criticizes correspondent with $dtaum1$
FACY_R	SINMOY1	normal average constraint with the plan criticizes correspondent with $dtaum1$
FACY_R	EPNMAX1	normal maximum deformation with the plan criticizes correspondent with $dtaum1$
FACY_R	EPNMOY1	normal average deformation with the plan criticizes correspondent with $dtaum1$
FACY_R	SIGEQ1	equivalent constraint associated with $dtaum1$
FACY_R	NBRUP1	many cycles before rupture, function of sigeq1 and a curve of Wöhler
FACY_R	ENDO1	damage associated with $nbrup1$ ($endo1=1/nbrup1$)
FACY_R	DTAUM2	second value of the half-amplitude max of shearing in the critical plan
FACY_R	VNM2X, Y, Z	components of the normal vector to the plan criticizes correspondent with $dtaum2$
FACY_R	…	…
FACY_R	ENDO2	damage associated with $nbrup2$ ($endo2=1/nbrup2$)

FLUX_R	Type: R	Vectorial flow of heat in a material point of the continuous field: $\Phi=-\lambda\nabla T$
FLUX_R	FLOW	component according to OX of Φ
FLUX_R	FLUY	component according to OY of Φ
FLUX_R	FLUZ	component according to OZ of Φ
FLUX_R	FLUX_SUP	flow on a point of the higher face of the hulls
FLUX_R	FLUY_SUP	flow on a point of the higher face of the hulls
FLUX_R	FLUZ_SUP	flow on a point of the higher face of the hulls
FLUX_R	FLUX_INF	flow on a point of the lower face of the hulls
FLUX_R	FLUY_INF	flow on a point of the lower face of the hulls
FLUX_R	FLUZ_INF	flow on a point of the lower face of the hulls

G	Type: R	Rate of refund of the energy and coefficients of intensity of constraints
G	GTHETA	rate of refund of energy
G	K1	stress intensity factor $K1$
G	K2	stress intensity factor $K2$

GEOM_R	Type: R	Geometry (of a node or a point of Gauss)
GEOM_R	X	coordinate according to OX
GEOM_R	Y	coordinate according to OY
GEOM_R	Z	coordinate according to OZ ($0.$ if the model is 2D)
GEOM_R	W	Weight of the point of Gauss

HYDR_R	Type: R	Field of hydration
HYDR_R	HYDR	Hydration

INDL_R	Type: R	Indicator of localization
INDL_R	INDEX	Criterion being worth 1 if localization (and 0 if not: $det\ NHN>0$)
INDL_R	DIR1	First direction of localization
INDL_R	DIR2	Second direction of localization
INDL_R	DIR3	Third direction of localization
INDL_R	DIR4	Fourth direction of localization

INFC_R	Type: R	Relative information with the contact
INFC_R	CONT	indicator of contact
INFC_R	GAME	game enters the node slave and the associated mesh Master

INFC_R	RN	multiplier of Lagrange and standard of RN
INFC_R	RNX, Y, Z	components of the vector of forces due to the contact
INFC_R	GLIX	normalizes tangent displacement in x for each connection
INFC_R	GLIY	normalizes tangent displacement in y for each connection
INFC_R	GLI	tangent displacement for each connection normalizes
INFC_R	RTAX	component x forces of the adherent nodes
INFC_R	RTAY	component y forces of the adherent nodes
INFC_R	RTAZ	component z forces of the adherent nodes
INFC_R	RTGX	component x forces of the slipping nodes
INFC_R	RTGY	component y forces of the slipping nodes
INFC_R	RTGZ	component z forces of the slipping nodes
INFC_R	X-ray	component x sum rn rtg and rta
INFC_R	RY	component y sum rn rtg and rta
INFC_R	RZ	component z sum rn rtg and rta
INFC_R	R	normalizes r_tot

PRES_C	Type: C	See PRES_R

PRES_R	Type: R	• Surface loading applied to a mechanical model (NEAR, CISA) • Unknown factor of a problem of acoustics: (pressure, speed of the fluid)
PRES_R	NEAR	value of the pressure
PRES_R	CISA	shearing applied to the edge of a model 2D
PRES_R	VX	speed of the following fluid OX
PRES_R	VY	speed of the following fluid OY
PRES_R	VZ	speed of the following fluid OZ
PRES_R	LAGR	parameter of Lagrange due to the dualisation of the boundary conditions

RCCM_R	Type: R	Sizes for the RCCM B3600
RCCM_R	C1	value index of constraints
RCCM_R	C2	value index of constraints
RCCM_R	C3	value index of constraints
RCCM_R	K1	value index of constraints
RCCM_R	K2	value index of constraints
RCCM_R	K3	value index of constraints
RCCM_R	TYPE	type of mesh
RCCM_R	E	modulus of elasticity at temperature of calculation
RCCM_R	E_AMBI	modulus of elasticity to room temperature
RCCM_R	NAKED	Poisson's ratio to room temperature
RCCM_R	ALPHA	dilation coefficient to room temperature
RCCM_R	E_REFE	Young modulus of reference
RCCM_R	SM	acceptable equivalent constraint of material
RCCM_R	M_KE	constant of material
RCCM_R	N_KE	constant of material
RCCM_R	IY	principal moment of inertia compared to Y
RCCM_R	IZ	principal moment of inertia compared to Z
RCCM_R	D	diameter of piping
RCCM_R	EP	thickness of piping
RCCM_R	SN	amplitude of variation of the linearized constraints
RCCM_R	SALT	amplitude of constraint
RCCM_R	U_TOTAL	factor of use
RCCM_R	TYPEKE	type of calculation of That : that is to say KE_MECA, that is to say K2_MIXTE

RICE_TRA		Sizes resulting from the calculation of growth of cavities in ductile rupture
RICE_TRA	TRIAX	rate of triaxiality on the mesh
RICE_TRA	RSR0	growth rate
RICE_TRA	VOLU	volume taken into account
RICE_TRA	NUMEMA	number of the mesh
RICE_TRA	DEPSEQ	variation of equivalent plastic deformation
SIEF_C	Type: C	See SIEF_R
SIEF_R	Type: R	State of stress (or of effort interns)
SIEF_R	SIXX	σ_{xx} constraints in a continuous medium
SIEF_R	SIYY	σ_{yy} constraints in a continuous medium
SIEF_R	SIZZ	σ_{zz} constraints in a continuous medium
SIEF_R	SIXY	σ_{xy} constraints in a continuous medium
SIEF_R	SIXZ	σ_{xz} constraints in a continuous medium
SIEF_R	SIYZ	σ_{yz} constraints in a continuous medium
SIEF_R	NR	normal effort
SIEF_R	VY	shearing action according to Y (internal efforts of the beams)
SIEF_R	VZ	shearing action according to Z (internal efforts of the beams)
SIEF_R	MT	torque according to X
SIEF_R	MFY	bending moment according to Y
SIEF_R	MFZ	bending moment according to Z
SIEF_R	BX	bi--moment (beam with warping)
SIEF_R	NXX	internal efforts of the hulls
SIEF_R	NYY	internal efforts of the hulls
SIEF_R	NXY	internal efforts of the hulls
SIEF_R	MXX	internal efforts of the hulls
SIEF_R	MYY	internal efforts of the hulls
SIEF_R	MXY	internal efforts of the hulls
SIEF_R	QX	internal efforts of the hulls
SIEF_R	QY	internal efforts of the hulls
SIEF_R	QXX, QXY, QYX, QYY, QZX, QZY	constraints generalized for the element QUAD4 “under-integrated” of modelings C_PLAN_SI and D_PLAN_SI
SIEF_R	FX	efforts for the discrete ones, beams, bars… in total reference mark
SIEF_R	FY	efforts for the discrete ones, beams, bars… in total reference mark
SIEF_R	FZ	efforts for the discrete ones, beams, bars… in total reference mark
SIEF_R	MX	efforts for the discrete ones, beams, bars… in total reference mark
SIEF_R	MY	efforts for the discrete ones, beams, bars… in total reference mark
SIEF_R	MZ	efforts for the discrete ones, beams, bars… in total reference mark
SIEF_R	VMIS	constraint of Von Mises
SIEF_R	TRESCA	constraint of Tresca
SIEF_R	PRIN_1	constraint principal direction 1
SIEF_R	PRIN_2	constraint principal direction 2
SIEF_R	PRIN_3	constraint principal direction 3
SIEF_R	VMIS_SG	constraint of Von Mises signed by the trace of sigma
SIEF_R	SN	constraint in the section of beam due to the normal effort
SIEF_R	SVY	constraint in the section of beam due to the shearing action Vy
SIEF_R	SVZ	constraint in the section of beam due to the shearing action Vz
SIEF_R	SMT	constraint in the section of beam due to the torque Mx
SIEF_R	SMFY	constraint in the section of beam due to the bending moment My
SIEF_R	SMFZ	constraint in the section of beam due to the bending moment Mz
SIEF_R	TRIAX	rate of triaxiality

SIEF_R	SI_ENDO	equivalent constraint of damage
SIEF_R	FSTAB [72]	forces of stabilization
SIEFMX_C	Type: C	See SIEFMX_R
SIEFMX_R	Type: R	Extreme constraints on a section of beam
SIEFMX_R	SIXXMIN	Minimal constraint on the section of beam
SIEFMX_R	SIXXMAX	Maximum constraint on the section of beam
SOUR_R	Type: R	Voluminal source of real type
SOUR_R	SOUR	value of the voluminal source applied to a mesh keyword SOURCE order AFFE_CHAR_THER
SOUR_R	VNOR	value the normal speed applied to a face keyword VITE_FACE order AFFE_CHAR_MECA
SPMA_R	Type: R	Calculation of the extremums of a field on a section of pipe
SPMA_R	MIN, MAX	extreme values of a field on all the points of integration of a section pipe
SPMA_R	NCOUMIN, NCOUMAX	numbers of the layers carrying out the minimum and the maximum
SPMA_R	NSECMIN, NSECMAX	numbers of the sectors carrying out the minimum and the maximum
SPMA_R	NPCOUMIN NPCOUMAX	numbers of the points of integration on the layers carrying out the min and the max
SPMA_R	NPSECMIN NPSECMAX	numbers of the points of integration on the sectors carrying out the min and the max
TEMP_C	Type: C	See TEMP_R
TEMP_F	Type: K8	See TEMP_R
TEMP_R	Type: R	Temperature (unknown of the thermal phenomenon)
TEMP_R	TEMP	temperature
TEMP_R	TEMP_INF	temperature on the lower face (hulls)
TEMP_R	TEMP_SUP	temperature on the higher face (hulls)
VARI_R	Type: R	Internal variables
VARI_R	V1,… Vn	the number and the significance of the internal variables are specific to each relation of behavior. To refer to the reference document relating to the behavior used on the mesh considered. In the case of elements with N “under-points” of integration, such as the hulls, the pipes, the beams multi - fibres, in each point of Gauss, the number of internal variables will be equal to the product $n \times m$, m being the number of internal variables of the behavior.
VNOR_C	Type: C	Normal speed applied to a face of mesh (acoustic)
VNOR_C	VNOR	value normal speed
WEIBULL	Type: R	Model of Beremin for the rupture by cleavage
WEIBULL	DSIGWB	constraint of Weibull