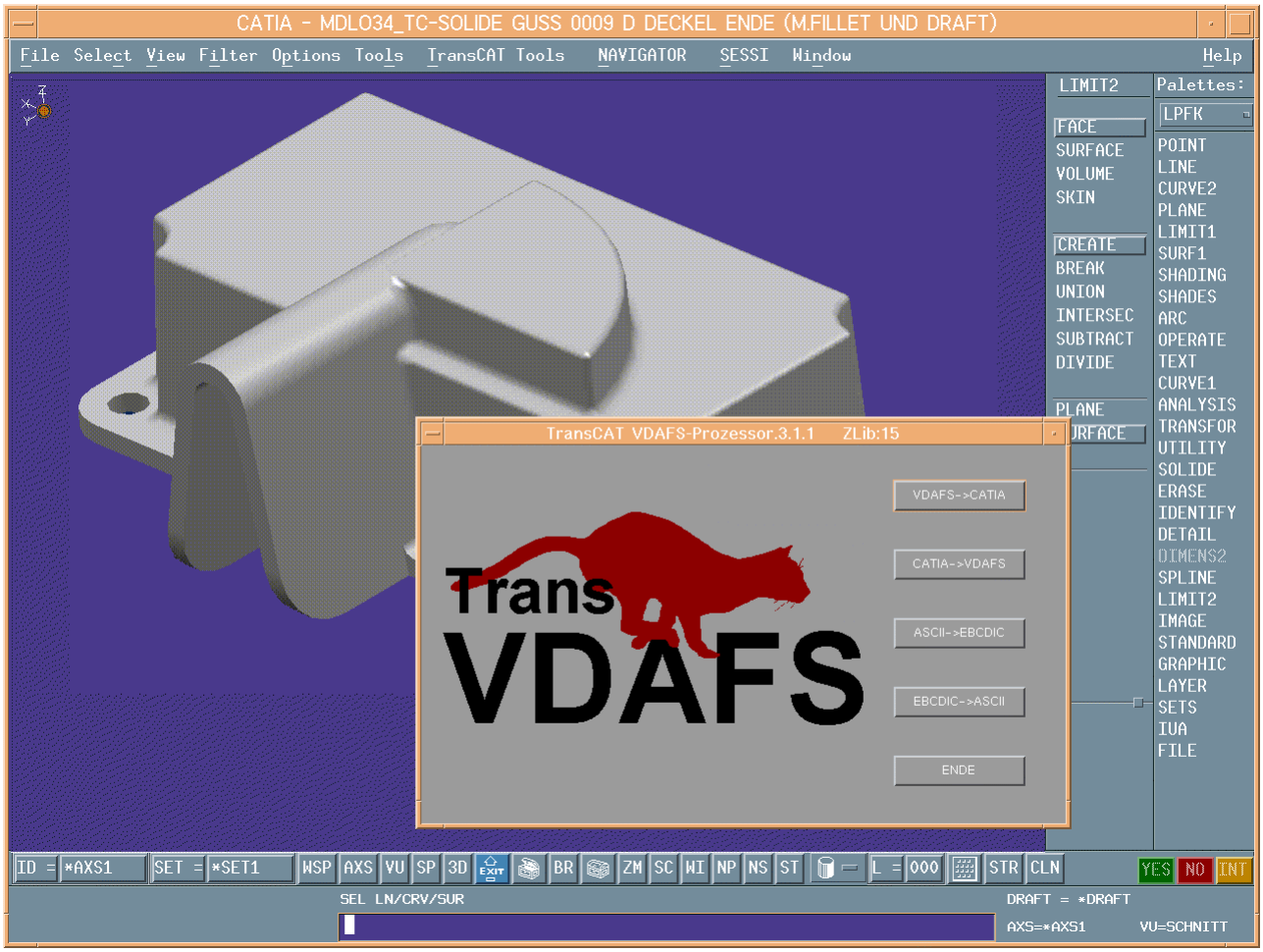
CATIA ® Software

VDAFS-Processor

User manual



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1. Introduction

The VDAFS-Processor enables the neutral exchange of surface data between various CAE-systems.

1.1 The Norm

Especially in the construction of automobiles there are many surfaces covering body parts, panels, seats etc. that cannot be described exactly by a simple analytical formula. However these surfaces can be brought closer together by using approximate interpolated mathematical methods. At the beginning of the eighties IGES 1.0 and 2.0 were not sufficient enough for the transmission of such surface data so that the VDA (Union of the German Automotive Industry) saw the necessitity to create a special interface for the exchange of surface data.

The abbreviation **VDAFS** stands for **VDA F**lächen**S**chnittstelle (Union of the Automotive Industry Surface Interface). The definition of this CAD-Exchange format is specified in the German Norm DIN 66 301.

1.2 The VDAFS-Processor for CATIA by TransCAT

This VDAFS-Processor consists of three modules:

Motif-Module	for the conversion of data without interactive CATIA with a GUI (graphical user interface) (Motif).
IUA-Module	within an interactive CATIA with a GUI (Motif).
Batch-Module	Command line version with a control file for the call from automated environments.

2. Operating Instructions

To convert data from VDAFS to CATIA and from CATIA to VDAFS there are three different versions of the TransCAT-VDAFS Processor available. All three have the same functionality but differ however in the user environment:

Motif-Module	- Transfer-parameter by GUI - Select/enter source file or model graphically - Select/enter target file or model graphically
IUA-Module	- Transfer-parameter by GUI - Select/enter target file graphically source model is current model/model file of CATIA-session - Select/enter source file graphically target model is current model/model file of CATIA-session
Batch-Module	- Transfer-parameter as text in control file - Source file or model as text in control file - Target file or model as text in control file

2.1 Motif/IUA-Module

In Motif-Module the transfer-parameter can be set by a graphical user interface. The same GUI also serves to define the parameter in the IUA-Module.
Using the IUA-module the CATIA-Model that is currently in the memory is always worked on. No other models can be read from or stored on disk.

2.1.1 Starting the program

The motif-module is started from the command line:

vdafs [-f <modelfile>][-m <modelname>][-d <profiledir>]		
	-f <modelfile>	pre-setting for model file
	-m <modelname>	pre-setting for model name
	-d <profiledir>	list of profiles (default databases *.cvp, ***.**vcp)

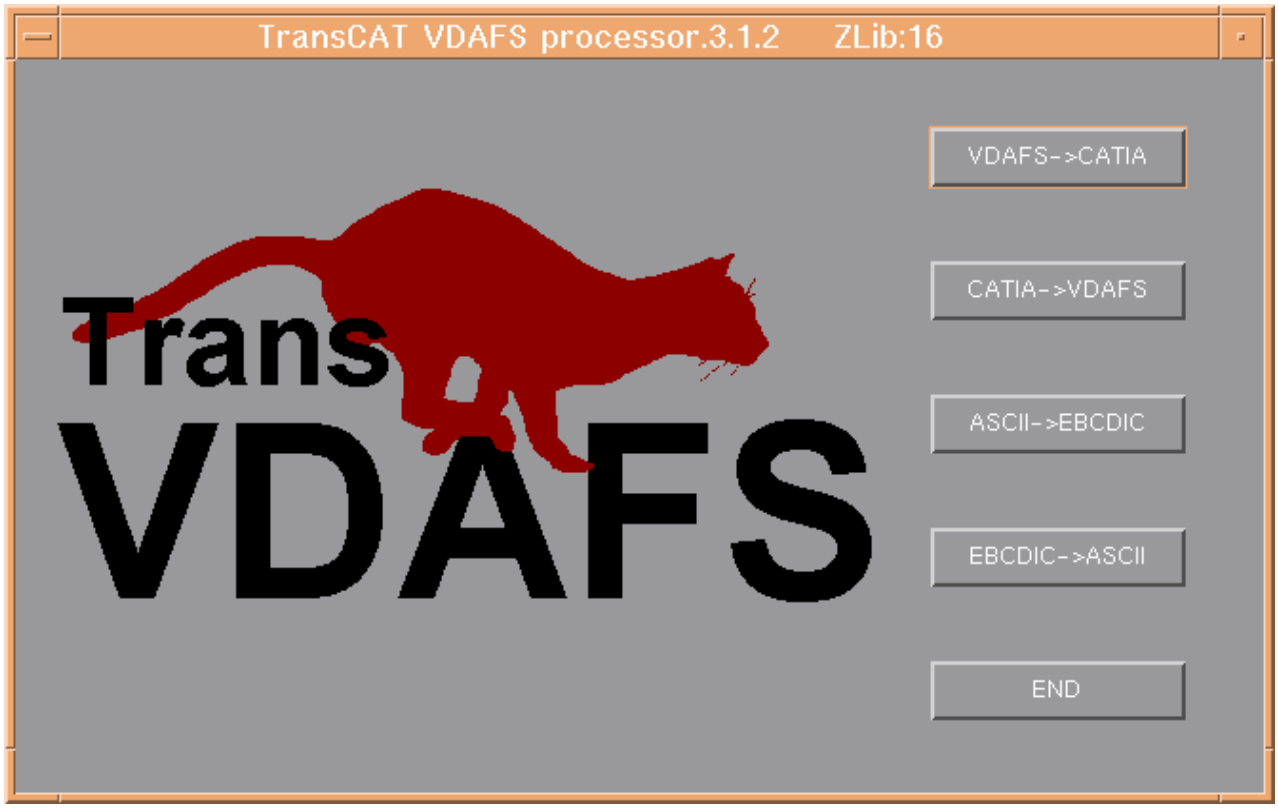
The IUA-module is started in CATIA within the IUA-function:

```
VDAFS
```

Or from any other function with

```
/m vdafs
```

2.1.2 Selection of transfer direction



The direction is chosen by pressing the corresponding button.

VDAFS->CATIA	A CATIA model is created from a VDAFS file.
CATIA->VDAFS	A VDAFS file is created from a CATIA model.
ASCII->EBCDIC	Converts a VDAFS file from ASCII to EBCDIC.
EBCDIC->ASCII	Converts a VDAFS file from EBCDIC to ASCII.
END	End of program

2.1.3 General Operator Elements

Panels for the corresponding groups of parameters can be selected in the upper part of the display. The panel ‘General’ is pre-set.

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The server elements in the lower part of the display are always available.

List button	Selection of various pre-settings (Profiles) Attention: Also the hidden panels can be changed!
Start	Start VDAFS-Processor
Cancel	Return to exit display

The Motif and the IUA-Motif-Module put two files into the actual list that are necessary for the execution:

	U_VDAFS	actual setting (can be control file for the batch module)
	VDAFS.cvp	actual setting for transmission CATIA->VDAFS
or	VDAFS.vcp	actual setting for transmission VDAFS->CATIA

The files VDAFS.cvp and VDAFS.vcp can be copied into the list of profiles (viz. starting the program) under a different name. The default for this list is the current one. Thus this profile can be read with the list button at the start of the next program, and a profile can be created for each data exchange user.

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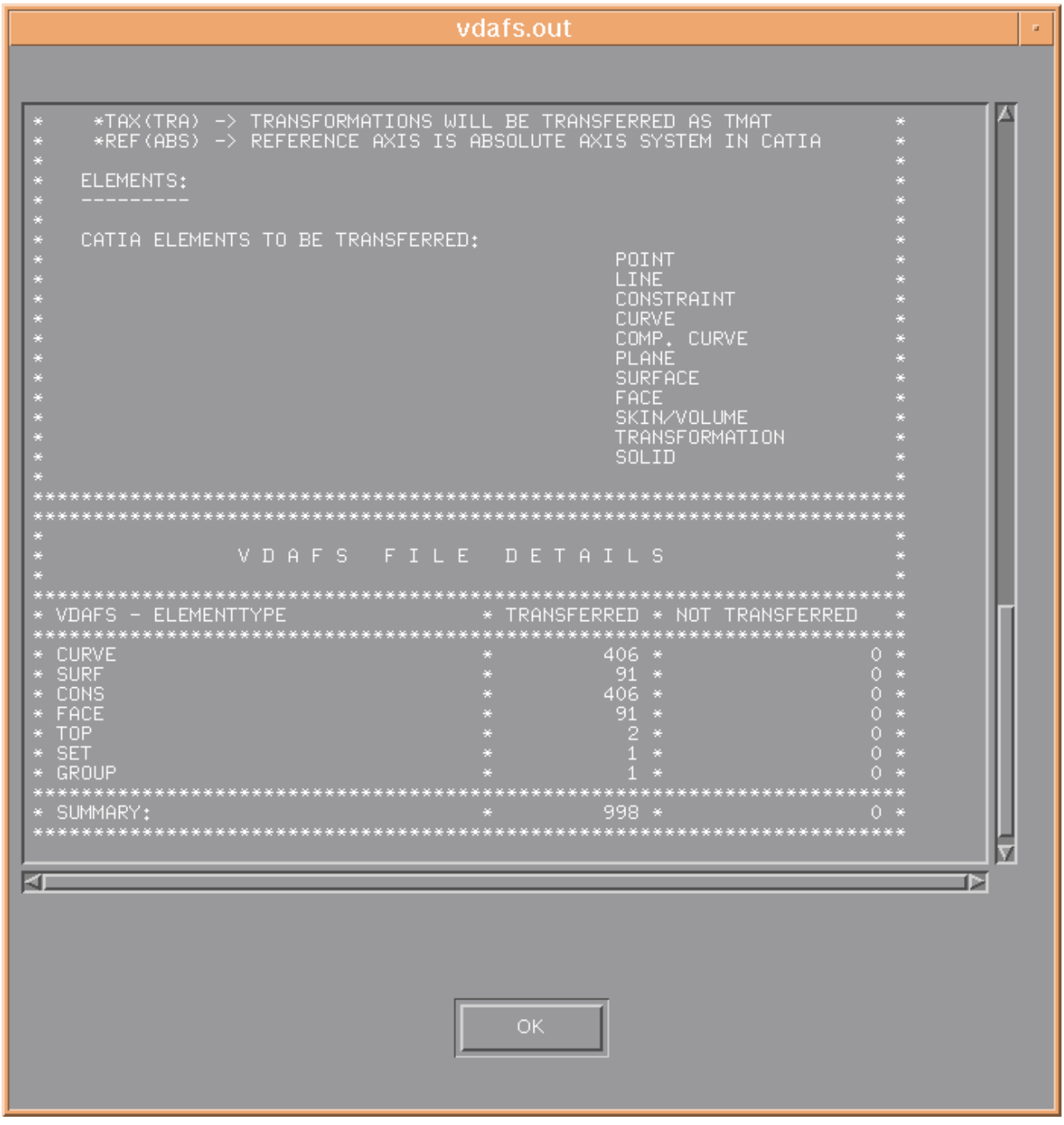
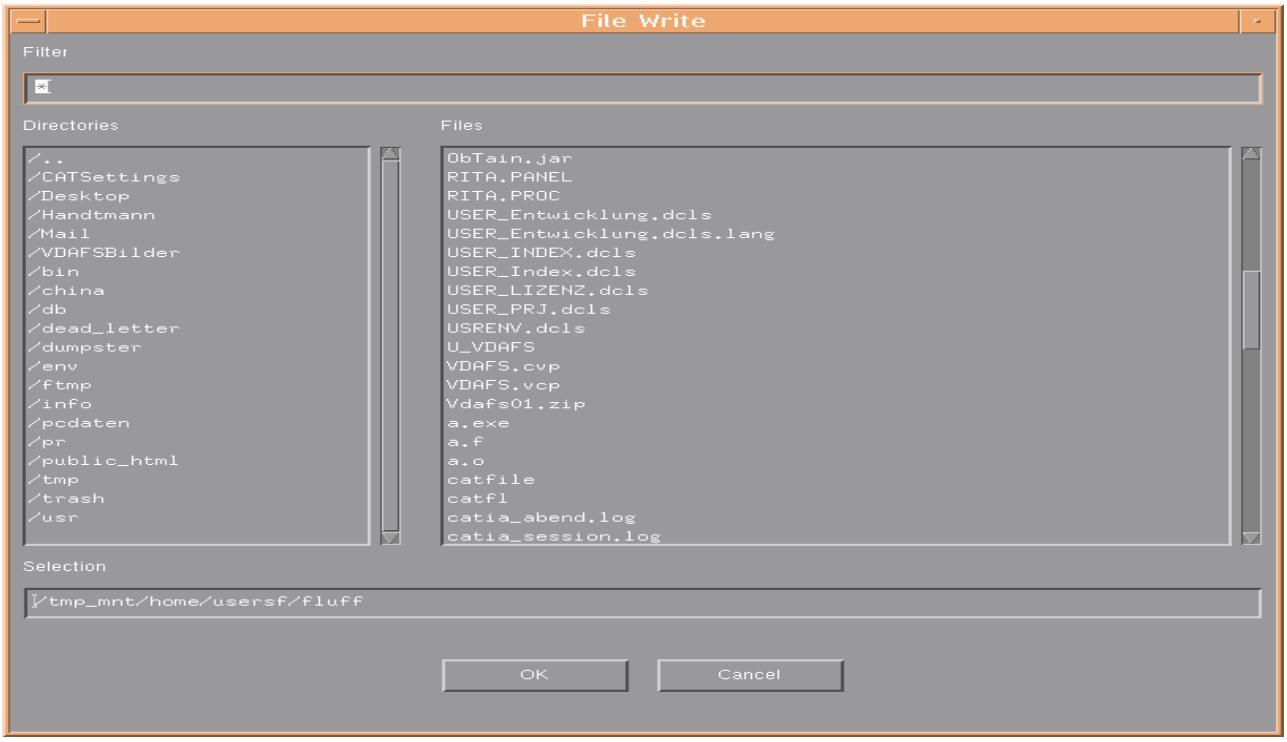
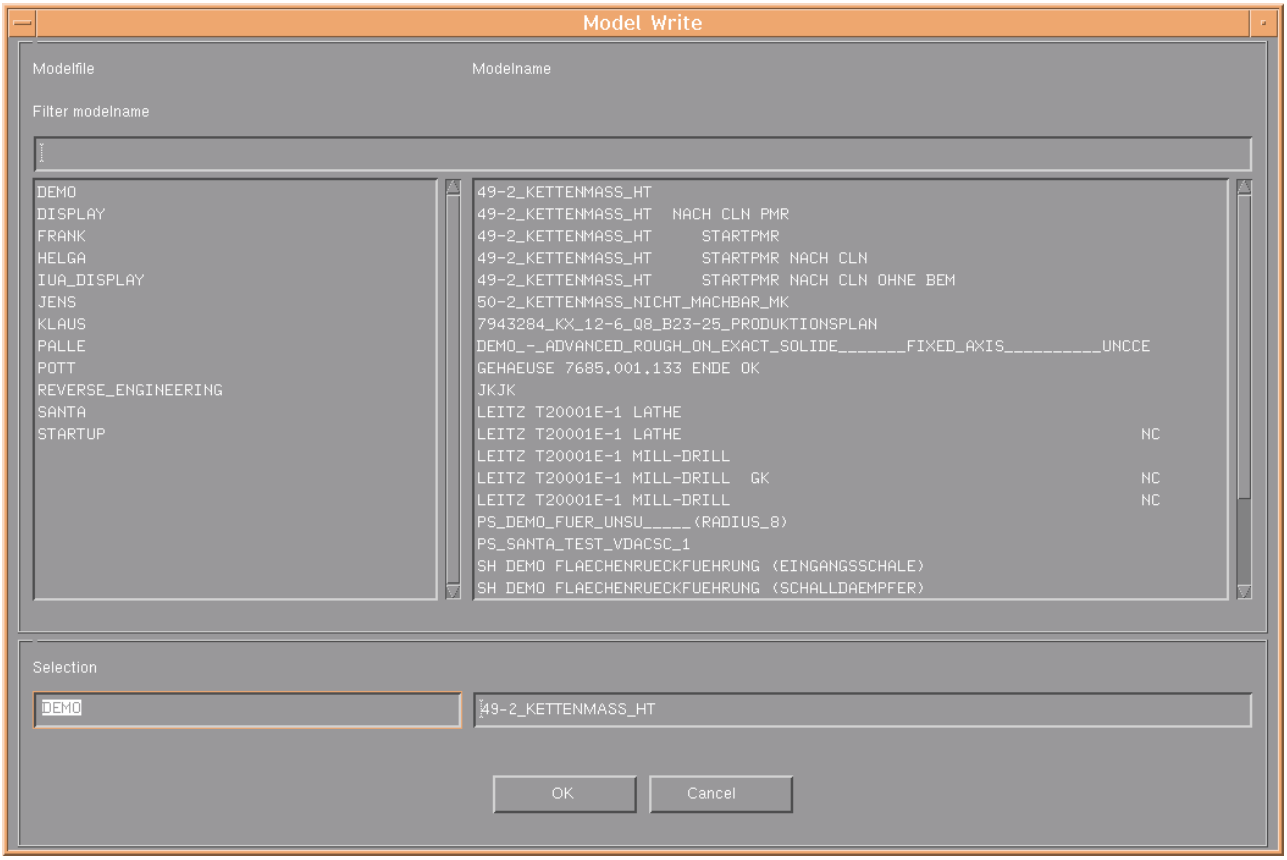


Protocol Window

VDAFS-Processor



File Selection Window (only single-click necessary)

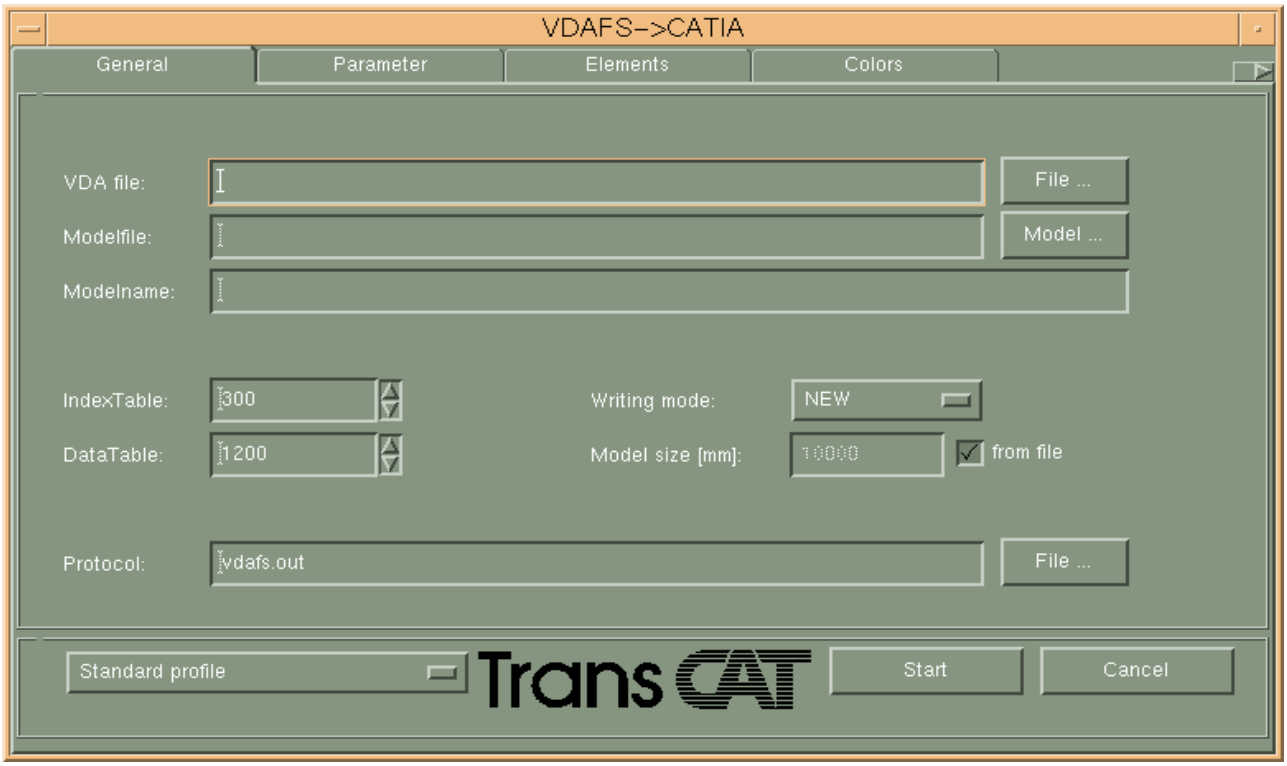


Model and Model file Selection Window (only single-click necessary)

2.1.4 VDAFS->CATIA

A CATIA-Model is created from a VDAFS-file.

2.1.4.1'General' Panel



In IUA-Version only the VDA-file can be selected in the general panel. Model file and model name are always the current model file and current model name. Thereby the index, data-table and size of model are defined. Elements from the VDAFS-files are always added to the current model.

VDA-File	Name of the VDAFS-file from which the CATIA-model shall be created. If the pathname is not specified, the file is placed in the current directory.	
	<name>	name of existing VDAFS-file

File	The VDA-file can be selected from a file selection display.

Model file	Name of model file from CATIA in which the created CATIA-model will be written.	
	<name>	name of model file

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Modelname	Name of CATIA model that is to be created.	
	<name>	new model name

Model...	Model file and model can be selected by a file selection display

Index Table	Size of the Index Table of CATIA-Model	
	<value>	Size in kilobytes. Default value = 300.

Data Table	Size of DATA-Table of the CATIA-Model	
	<value>	Size in kilobytes. Default value = 1200.

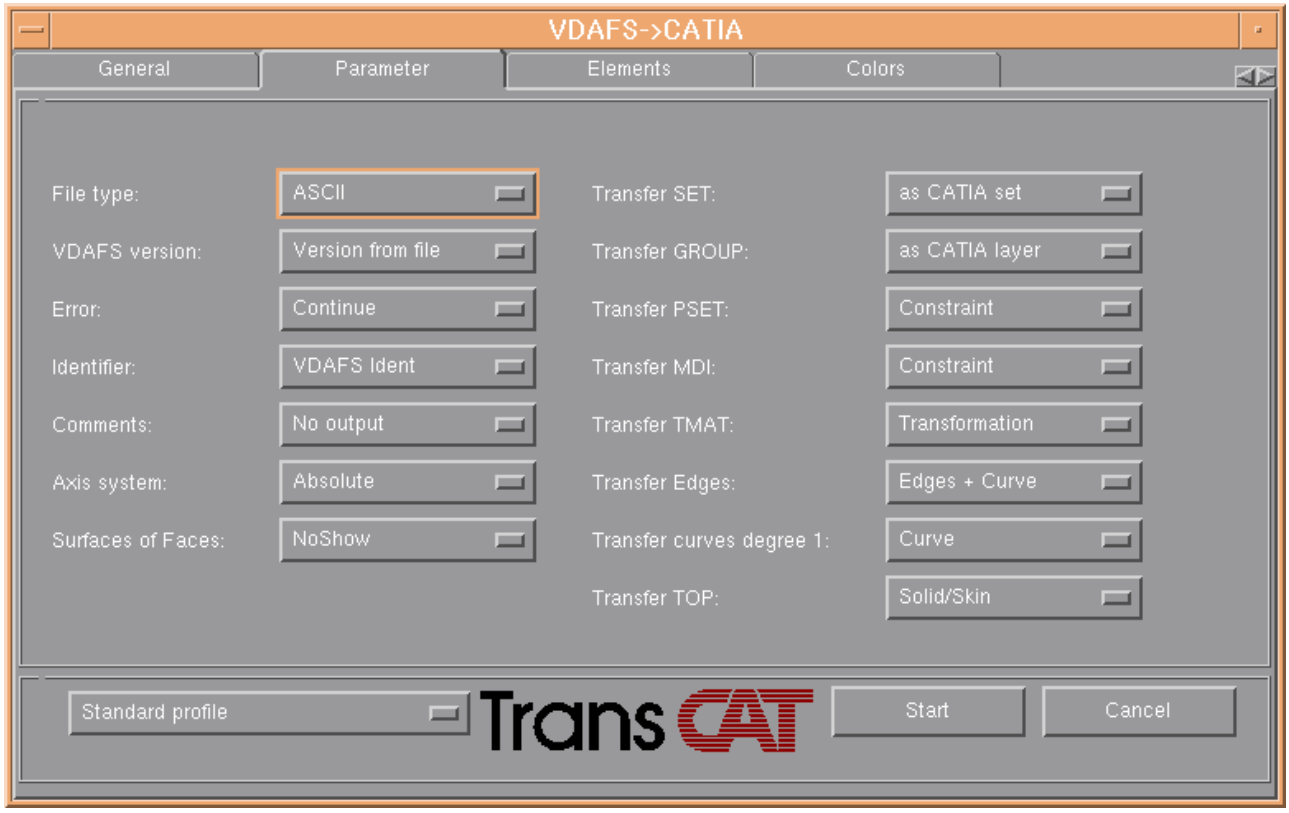
Writing mode	Right to replace	
	NEW	A new CATIA-model is created. A model with the same name must not exist.
	REPL	An existing CATIA-model with the same name is replaced.
	ADD	The CATIA-elements created by the VDAFS-file are added to an existing model.

Model size	Dimension of the CATIA-model. Attention: The tolerance of the CATIA-model depends on the size!	
	<value>	Value in mm. Default = 10000.0
	from database	The processor tries to determine the model size from the VDAFS-file. This is only possible when the VDAFS-file is exported by the TransCAT-Processor. Otherwise the default value is used.

Protocol	Filename of Protocol file	
	<name>	Protocol file. If no path is identified the current directory is used. Default value = vdafs.out

File	The filename of the Protocol file can be selected from a file selction box

2.1.4.2 'Parameter' Panel



File type	VDAFS-file in ASCII or EBCDIC-Code.	
	ASCII	File exists in ASCII-Code.
	EBCDIC	File exists in EBCDIC-Code, changes will be implemented.

VDAFS version	VDAFS-version for Conversion	
	Version from file	The VDAFS-version will be taken from the VDAFS-file. Version 2.0 will be used if the version cannot be recognized.
	Version 1.0	VDAFS-Version 1.0 is used.
	Version 2.0	VDAFS-Version 2.0 is used.

Error	Reaction if errors occur	
	Continue	If an error occurs the VDAFS-Operation will be continued.
	Terminate	If an error occurs the VDAFS-Operation is terminated.

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Identifier	Identifier of VDAFS-Elements	
	VDAFS Ident	The identifiers for CATIA-elements are adopted from the VDAFS-file
	CATIA Ident	The CATIA-elements will be stored with the CATIA standard identifier.

Comments	Comments from the VDAFS-files	
	No output	The comments in the VDAFS-files are not written into the Protocol file.
	In protocol file	The comments in the VDAFS-files are written into theProtocol file.

Axis System	Reference axis system in CATIA	
	Absolute	The reference axis system is the absolute axis system of the model.
	Relative	The reference axis system is the current axis system of the model.

Surfaces of Faces	Base Surfaces into NoShow	
	NoShow	The base surfaces of faces will be transferred into “NoShow”-area in CATIA.
	Show	The base surfaces of faces are shown in “Show”-area in CATIA.

Transfer SET	VDAFS-Set -> CATIA-Set	
	as CATIA-Set	The sets from the VDAFS-file will be created within the CATIA-model.
	No transfer	The sets from the VDAFS-file are ignored.

Transfer GROUP	Treatment of VDAFS-Groups	
	as CATIA-Layer	The elements from various ‘Groups’ of the VDAFS-file are assigned to different layers in the CATIA –model. (viz. Panel Elements)
	No transfer	The ‘Groups’ from the VDAFS-file are ignored in the CATIA-model.

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Transfer PSET	Treatment of VDAFS-PSET (set of points)	
	Constraint	The elements 'PSET' from the VDAFS-file will be creadet in CATIA as constraints.
	Point	The elements 'PSET' from the VDAFS-file will be created in CATIA as single points.
	Line	The elements 'PSET' from the VDAFS-file will be created in CATIA as lines, whereby a line will be drawn from point to point.

Transfer MDI	Treatment of VDAFS-MDI – (point and vector)	
	Constraint	The elements 'MDI' from the VDAFS-file will be created in CATIA as constraints.
	Line	The elements 'MDI' from the VDAFS-file are adopted in CATIA as lines, whereby a line is drawn from point to point.

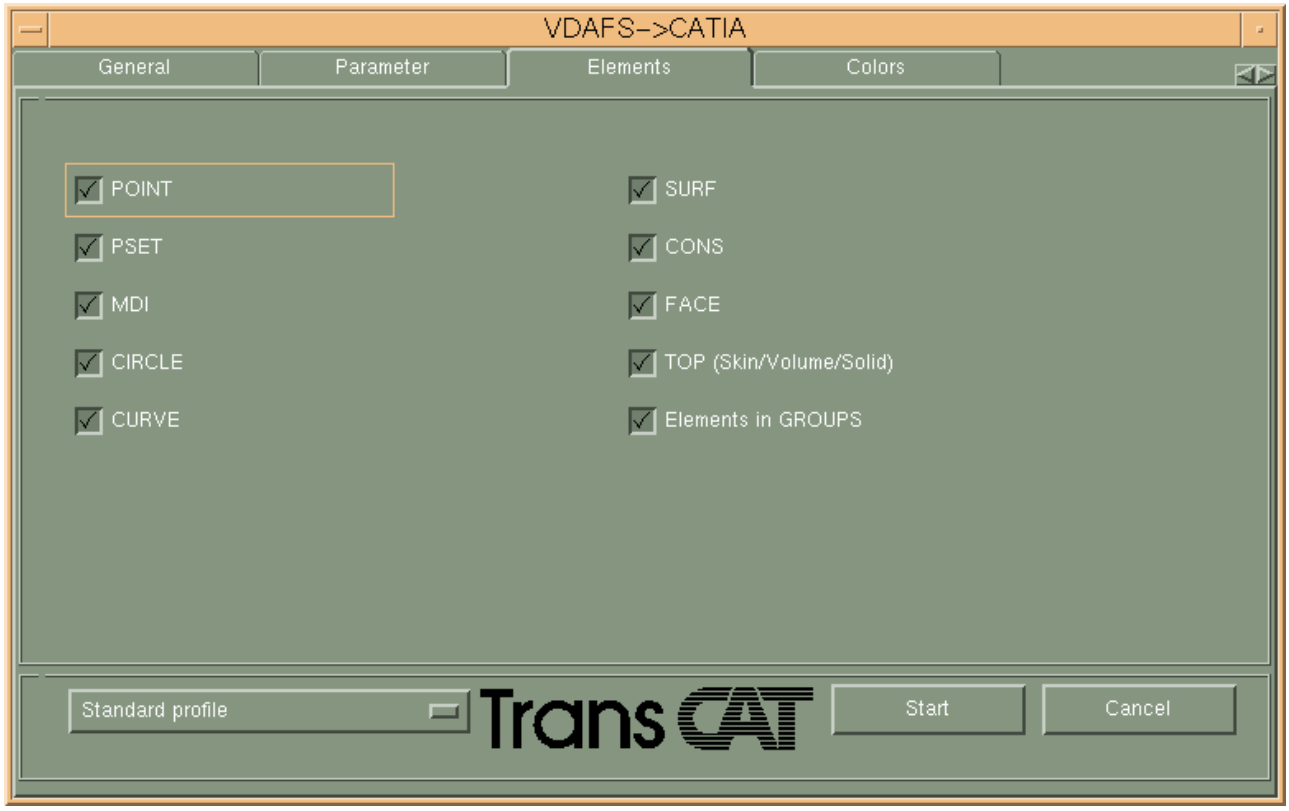
Transfer TMAT	Treatment of VDAFS-TMAT	
	Transformation	The VDAFS-element 'TMAT' is transferred as CATIA-TRANSFORMATION.
	Axis System	The VDAFS-element 'TMAT' is transferred as CATIA-AXIS.

Transfer Edges	In VDAFS each CONS element has an additional 3D-curve.	
	Edges+Curve	This 3D-curve is tranferred in CATIA.
	Edges	The 3D-curve is not transferred in CATIA; only the edge is transferred.

Transfer curves degree 1	As VDAFS only recognises curves but no lines, lines are represented as degree 1 curves.	
	Curve	Degree 1 curves are adopted as curves in CATIA.
	Line	Degree 1 curves are converted to lines in CATIA.

Transfer TOP	Treatment VDAFS-TOP. If the Top results in a closed skin a solid or volume is produced.	
	Solid/Skin	Produce solid.
	Volume/Skin	Produce volume.

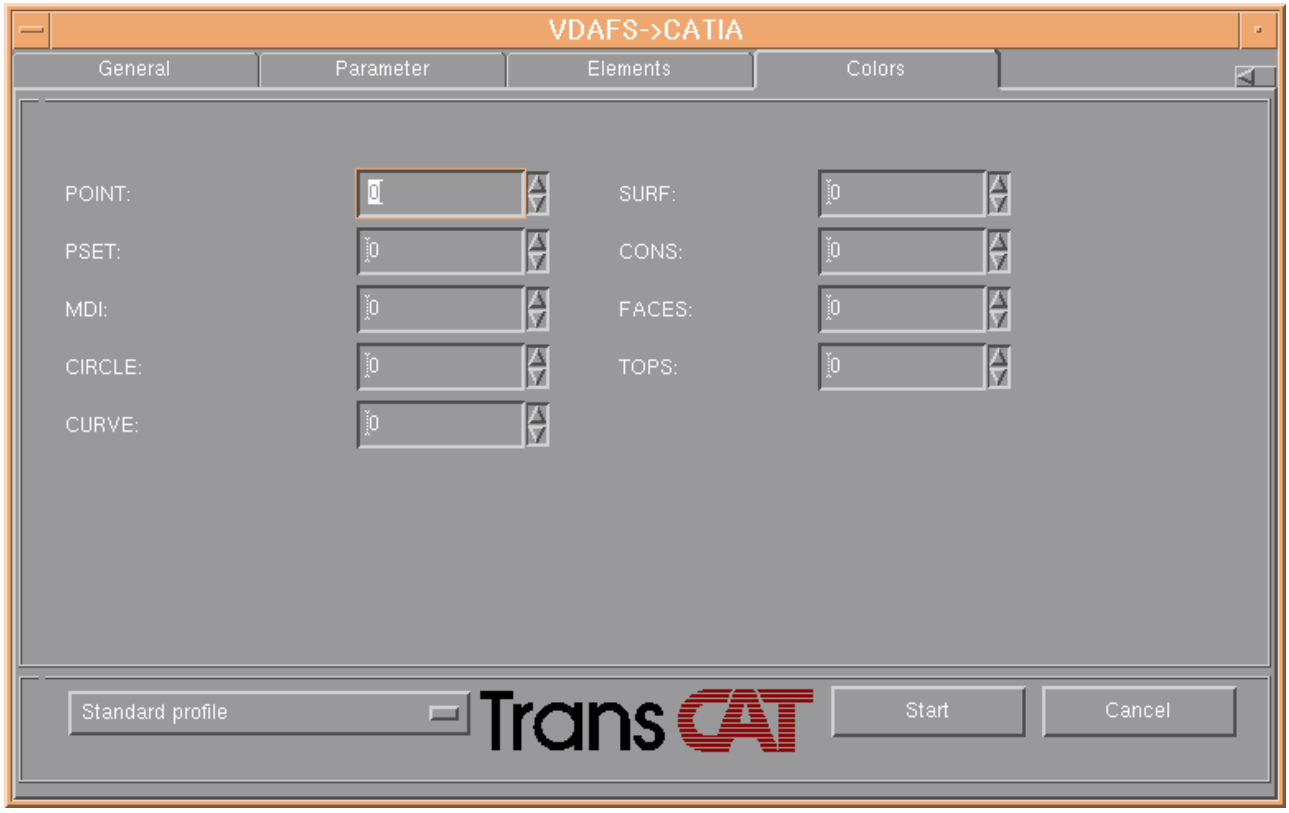
2.1.4.3 'Elements' Panel



POINT PSET MDI CIRCLE CURVE SURF CONS FACE TOP (Skin/Volume/Solid)	Transfer of elements	
	Selected	Each of the elements is transferred from the VDAFS-file.
	Not selected	The elements from the VDAFS-file are not transferred. However essential basis-elements are transfered nevertheless.

Elements in GROUPS	Treatment of Element GROUP	
	Selected	GROUP is treated according to panel Parameter: image GROUP.
	Not selected	GROUP is ignored.

2.1.4.4 Panels ‘Colours’

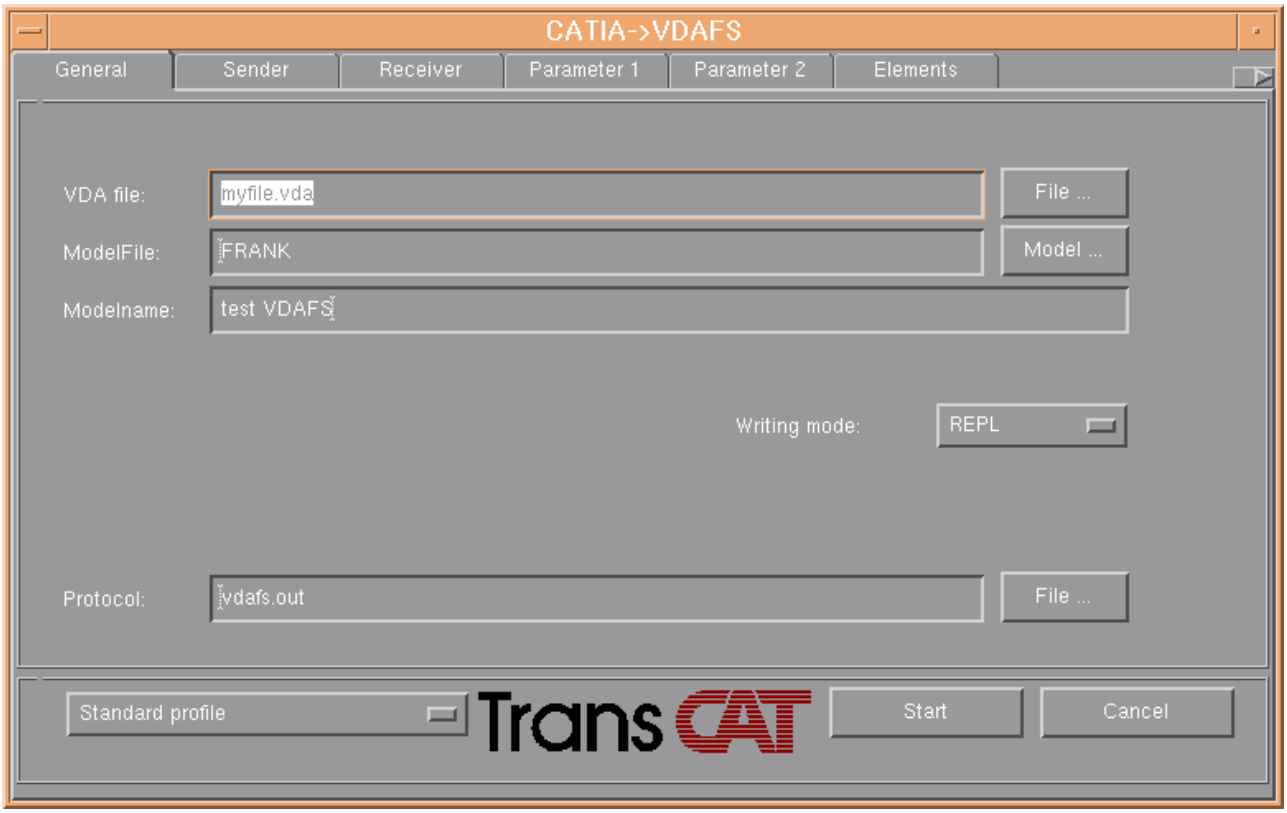


POINT	Definition of element colours in the CATIA-model.	
PSET MDI CIRCLE CURVE SURF CONS FACE TOP	0 to 125	Colour value (0 = no colour)

2.1.5 CATIA-> VDAFS

A VDAFS-file is created from a CATIA-Model.

2.1.5.1 'General' Panel



In IUA-version only the VDA-file can be selected in General' Panel. Model file and model name are always the current model file or model name. The write mode can be determined.

VDA-file	File name of the VDAFS-file that is created from the CATIA-model. If the path name is not specified, the file is in the current directory.	
	<name>	Name of the created VDAFS-file.

File	The VDA-file can be selected from a file selection display.

Modelfile	Name of the model file in which the CATIA-model is stored.	
	<name>	Name of model file

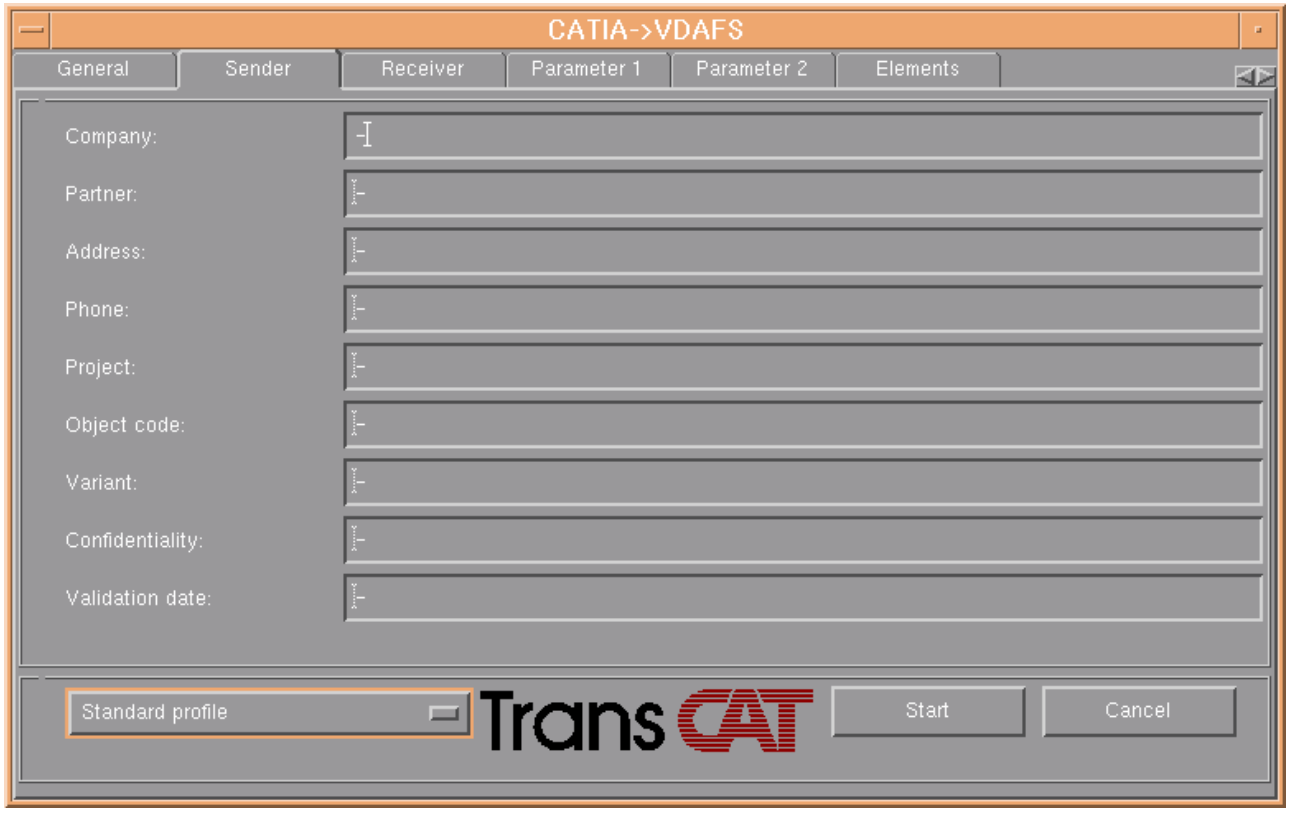
Model	Model file and model can be selected from a selection display.

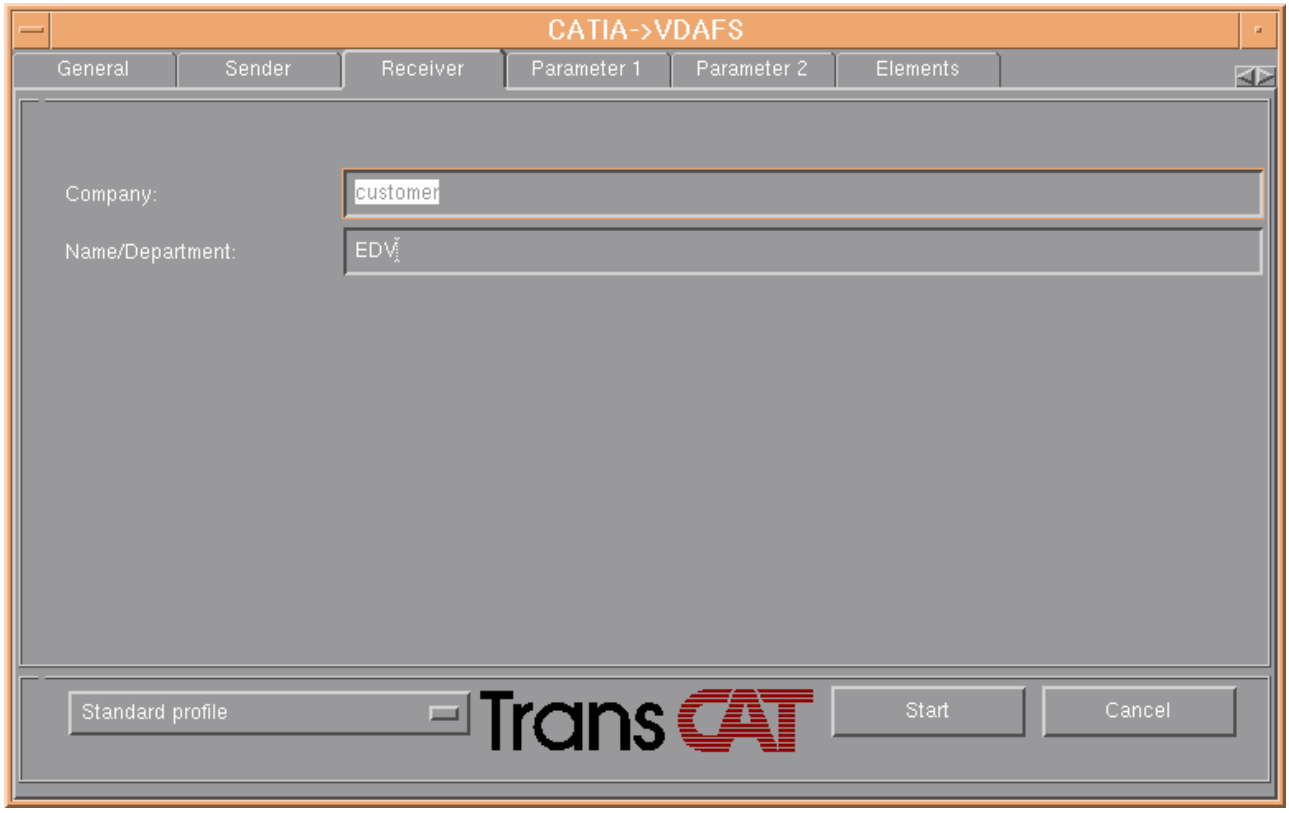
Writing mode	Right to replace	
	NEW	If a file with the same name already exists it will not be replaced. An error message is issued.
	REPL	An already existing file with the same name will be replaced.

Protocol	File name of Protocol file	
	<name>	Protocol file. If no path is specified the current directory will be used. Default value = vdafs.out

File...	The file name of the Protocol file can be selected from a file selection box.

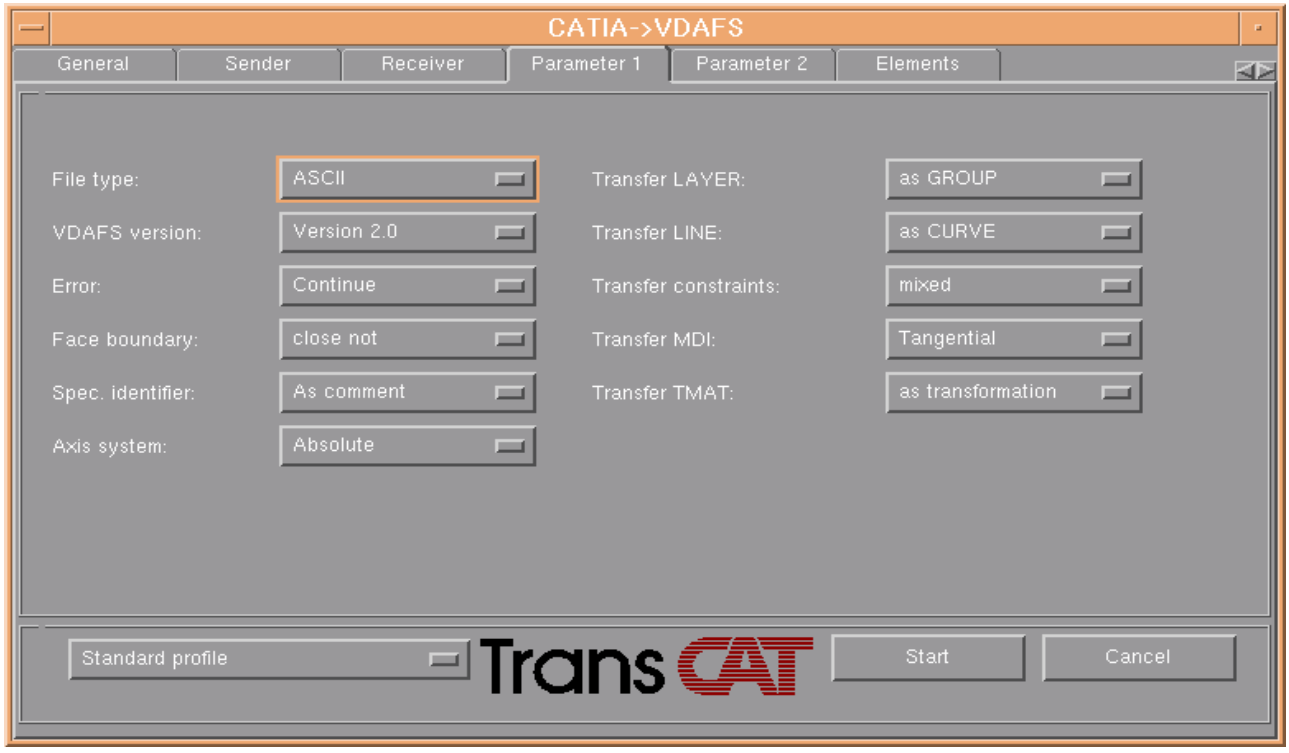
2.1.5.2 Panel ‘Sender and Receiver’





Company **Partner** **Address** **Phone** **Project** **Object code** Variant Confidentiality Validation date **Company** **Name/Department**	These panels contain data for the VDAFS-header.	
	<text>	Any text: Umlauts (ä Ä ö Ö ü Ü ß) are not permitted.

2.1.5.3 Panel 'Parameter 1'



File type	VDAFS-file in ASCII or EBCDIC-Code	
	ASCII	The file is created in ASCII-Code.
	EBCDIC	The file is created in EBCDIC-Code.

VDAFS version	VDAFS version for the conversion	
	Version 2.0	The VDAFS version 2.0 is used.
	Version 1.0	The VDAFS version 1.0 is used.

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Error	Reaction to error.	
	Continue	If an error occurs the VDAFS-processing will be continued.
	Terminate	If an error occurs the VDAFS-processing is terminated.

Face boundary	As the tolerances of the model can be defined by the user in CATIA, it can happen that an external system encounters tolerance problems when reading CATIA's VDAFS-data, because its tolerances have been set narrower. It may happen that the border of a face is not closed and therefore the face cannot be created. 'Big' gaps can be closed by small lines, so that the target system can be read successfully. The narrower tolerance can be set in panel 'Parameter 2'.	
	Close not	Possible existing gaps of a face contour will not be closed.
	Close	Possible existing gaps of a face contour will be closed if the gaps are bigger or equal to a pre-set tolerance.

Spec. Identifier	CATIA-Identifier, that can not be used for VDAFS are written as comments.	
	As comment	Write as comment
	No output	Identifiers from CATIA which cannot be used will be lost.

Axis system	Reference axis system in CATIA	
	Absolute:	Reference axis system of the VDAFS-file is the absolute axis system of the CATIA-model.
	Relative	Reference axis system of the VDAFS-file is the current axis system of the CATIA-model.

Transfer LAYER	Treatment Layer in VDAFS	
	as GROUP	If CATIA-elements are on different layers these layers are generaded as Group-elements in VDAFS.
	No transfer	The layer structure of CATIA will be ignored.

Transfer LINE	There is no element LINE in VDAFS. Therefore lines from CATIA have to be converted.	
	as CURVE	The lines are created as curves.
	as PSET	lines are created as PSET (set of points).

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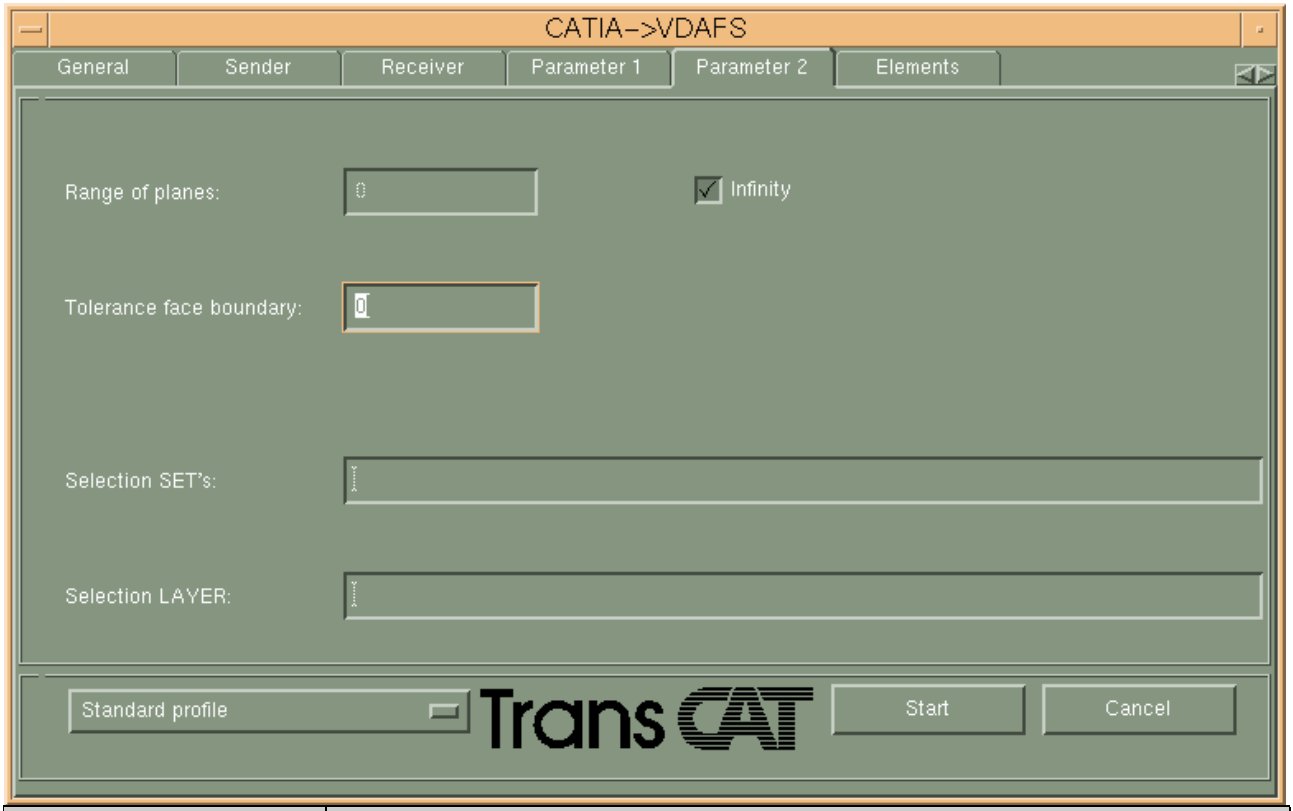
Transfer Constraints	Treatment of constraints in VDAFS	
	MIXED	Constraints from CATIA are created in VDAFS as MDI (point and vector); if tangents, curvatures or normals have been defined.Otherwise shown as PSET (set of points)
	as MDI	Constraints from CATIA are created as MDI in VDAFS.
	as PSET	Constraints from CATIA are created as PSET in VDAFS.
	as POINT	Constraints from CATIA are created as single points in VDAFS.

Transfer MDI	Contrary to constraints from CATIA, that can contain tangents and normals, a MDI in VDAFS can only contain one of the two conditions.	
	Tangential	Only the tangents information from CATIA are transferred.
	Normal	Only the normal conditions from CATIA are transferred.

Transfer TMAT	Treatment of TMAT in VDAFS	
	as Transformation	CATIA-Transformations are transferred as VDAFS-element TMAT.
	as Axis systems	CATIA-Axis systems are transferred as VDAFS-element TMAT.

2.1.5.4 'Parameter 2' Panel



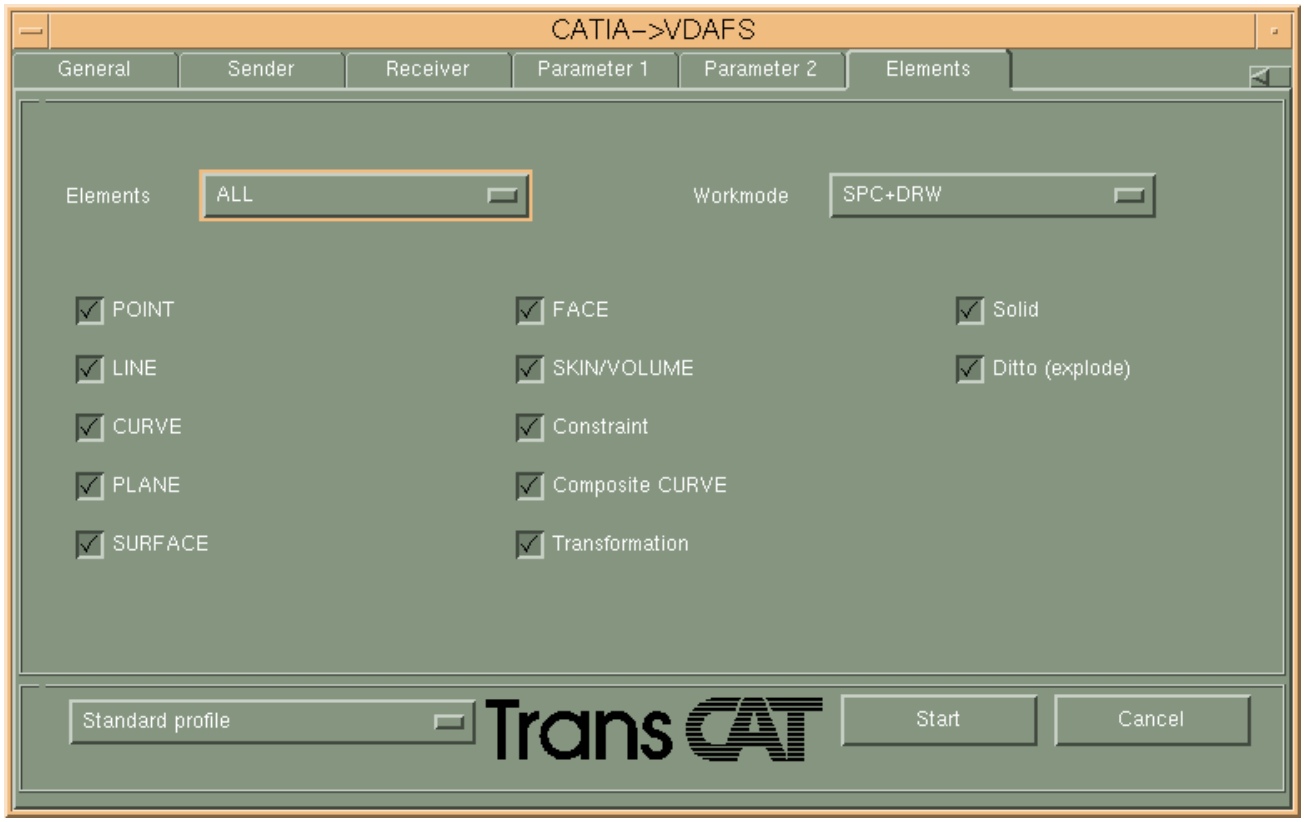
Range of Planes	The element 'Plane' does not exist in VDAFS. There fore planes will be converted into planar Surfaces.	
	<value>	Size of surfaces
	INFINITY	Size of surfaces is unlimited.

Tolerance face boundary	Tolerance for automatically closing of gaps in the contour of a face. Compare Parameter 1: Face boundary	
	<value>	Tolerance value: 1.E-10<value<1.0
	0.0	TOLPT (IdenticalPointTolerance)

Selection SET'S	Selection of SET's from which elements are written into VDAFS.	
	<sets>	List of Sets separated by a comma. (Example: **SET1,**SET2,*SET3) Alternative: several sets can be Specified by a chain of characters and '*'. 'SET* transfers all Sets which names begin with 'SET'.
	No details	All Sets are transferred.

Selection LAYER	Selection of Layers from which elements are written into VDAFS.	
	<layer numbers>	The layer numbers (0-254) must be separated by a comma. (Example: 10,11,12,13,14,15)
	No details	All layers are transferred.

2.1.5.5 'Elements' Panel

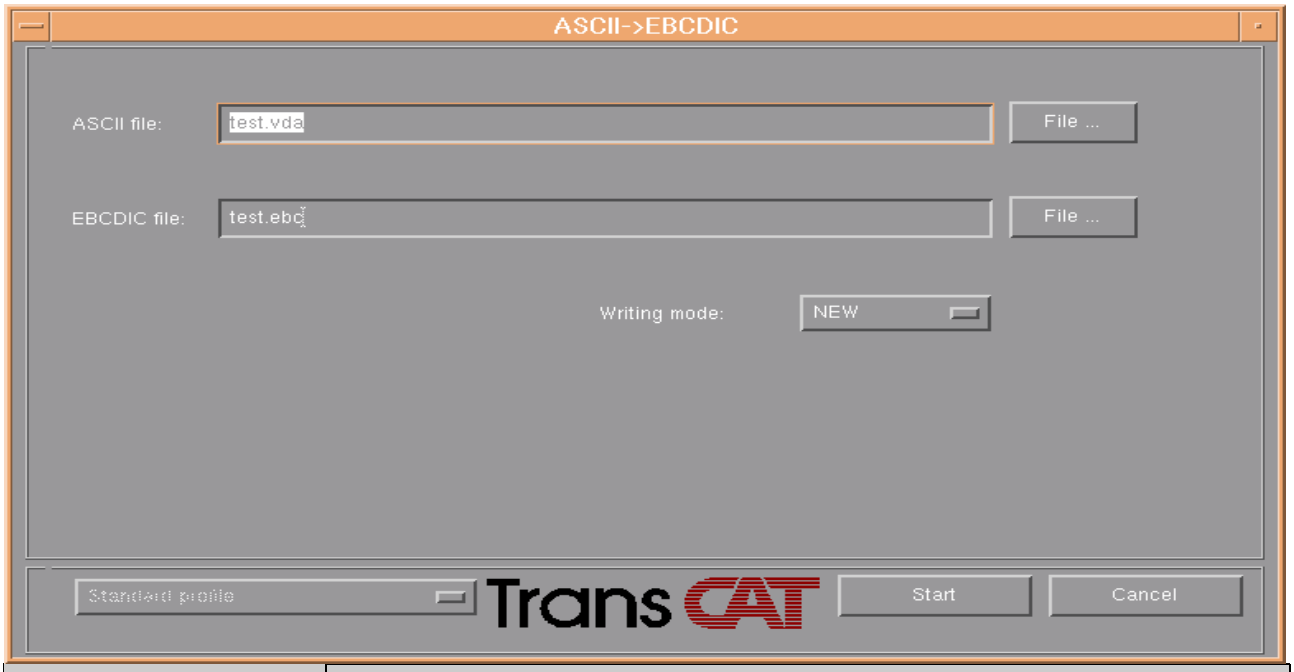


Elements	Output of all elements from CATIA show and NoShow area	
	All	Output of all elements.
	Show	The elements from CATIA show area are transferred. How ever essential base elements from NoShow will be created.
	NoShow	The elements from CATIA NoShow area are transferred. How ever essential base elements will be created.

Workmode	Output of elements from Space- and/or Drafting mode	
	SPC+DRW	all elements
	SPC	SPC elements
	DRW	DRW elements

POINT LINE CURVE	Transfer of Elements	
	Selected	The relevant elements from the VDAFS-file will be transferred.
PLANE SURFACE FACE SKIN/VOLUME Constraint Composite CURVE Transformation Solid Ditto (explode)	Not selected	The relevant elements from the VDAFS-file will not be transferred. However essential base elements from NoShow will be generated.

2.1.6 ASCII->EBCDIC



ASCII-File	File that has to be converted from ASCII to EBCDIC	
	<name>	Name of ASCII-file

File...	The ASCII-file is selected from a file selection box.

EBCDIC-File	EBCDIC-Data is written into this file.	
	<name>	Name of EBCDIC-file

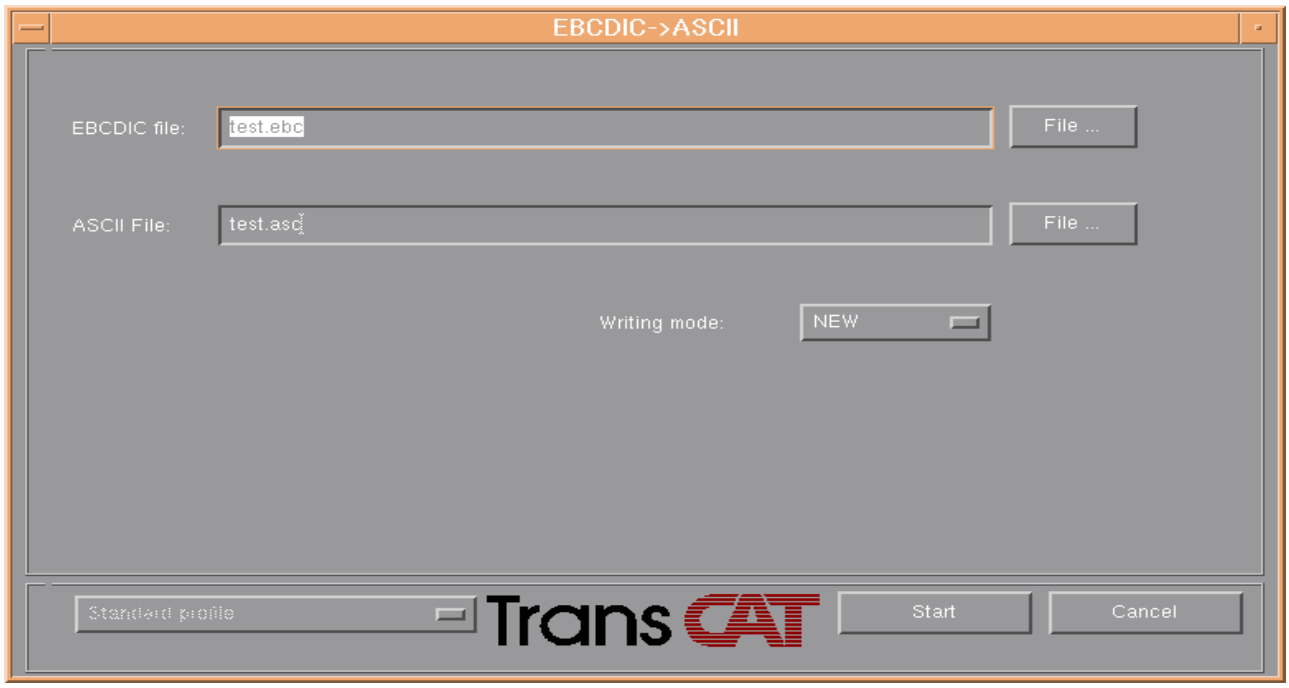
File...	The EBCDIC-file is selected from a file selection box.

Write mode	Grant right to replace	
	NEW	If a file with the same name exists it will not be replaced.
	REPL	An existing file with the same name will be replaced.

The ASCII-file itself will not be changed. It is not permitted to write a file onto itself. Therefore the ASCII-filename and the EBCDIC-filename must be different.

Letters, digits and the characters { . , ; : - _ + * } are converted correctly. The correct conversion of other special characters and umlauts cannot be guaranteed.

2.1.7 EBCDIC-> ASCII



EBCDIC-File	File that has to be converted from EBCDIC to ASCII	
	<name>	Name of EBCDIC-file.

File...	The EBCDIC-file is selected from a file selection box.

ASCII-File	ASCII-Data is written into this file.	
	<name>	Name of ASCII-file.

File...	The ASCII-file is selected from a file selection box.

Write mode	Grant right to replace	
	NEW	If a file with the same name exists it will not be replaced
	REPL	An existing file with the same name will be replaced.

The EBCDIC-file itself will not be changed. It is not permitted to write a file onto itself. Therefore the ASCII-filename and the EBCDIC-filename must be different.

Letters, digits and the characters { . , ; : _ - + * } are converted correctly. The correct conversion of other special characters and umlauts cannot be guaranteed.

2.2 Batch-Module

It is possible to call the VDAFS-processor without using panels. In this case the Input-Control-File (U_VDAFS or the file specified with –i) has to be edited and written manually. Doing that has the advantage that the VDAFS-processing can be integrated into companies own environments.

The VDAFS-processing can also be started at a certain time (viz. UNIX-command: at, cron).

Several VDAFS-runs can be processed one after the other without making any interactions necessary and without having to re-start the procedure. The definition-file therefore can contain several jobs.

2.2.1 Starting the Program

The Batch-module is started from the menu bar:

vdafs -x [-i <inputfile>][-o <protocol>]		
	-x	Start VDAFS without dialogue
	-i <inputfile>	Input-Control-File (def.: U_VDAFS)
	-o <protocol>	Protocol-file (def.: vdafs.out)

A correctly existing Input-Control-File is required. The file contents Keywords, consisting of 4 characters (first character is always '*') and their corresponding parameters.

Example: *WDI /catdir1/model/vdafs

Not all keywords have to be specified. If an optional Keyword is not in the Input-Control-File, the relevant default value will be used.

A VDAFS-Input-Control-File can contain several jobs. The different jobs are separated by the Keyword “RUN” . They are processed sequentially one after the other. An Input-Control-File can only have one transfer direction (e.g. VDAFS-> CATIA).

The file format, the keywords and their parameters are described as follows.

2.2.2 General Parameter

***DIR**	Transfer direction. Can only be used in the first job.	
	CATIA	Transfer direction VDAFS -> CATIA
	VDAFS	Transfer direction CATIA -> VDAFS

***RUN**	No Parameter. End of a BDAFS-job, this must be the last keyword within a job.

2.2.3 VDAFS-> CATIA Parameter

Description of keywords

***WDI name**	Name of the CATIA model file where the CATIA-model will be stored.	
	<name>	Name of model file.

***MOD name**	Name of the a newly created CATIA-model (specified in the next line). Example: *MOD VDAFS MODEL 1	
	<name>	New model name

*REP	Right to replace	
	NEW	A new CATIA-model will be created. A model with the same name cannot yet exist.
	REPL	An existing CATIA-Model with the same name will be replaced.
	ADD	The created CATIA-elements from the VDAFS-file will be added to an existing model.

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*ERR	Error reaction	
	YES	If an error occurs the VDAFS processing will be interrupted.
	NO	If an error occurs the VDAFS processing will be continued.

***INP name**	model will be created. If the path name is not specified the file will be in the current directory. Example: *INP /u/vdafs/test.vdafs.	
	<name>	File name of the VDAFS file from which the CATIA-Name of existing VDAFS-file

*ATE	VDAFS-file in ASCII or EBCDIC-Code	
	ASCII	File exists in ASCII-Code
	EBCDIC	File exists in EBCDIC-Code.

*VER	Setting of VDAFS-version	
	0.0	The VDAFS-version is taken from the VDAFS-file. If the version cannot be found, Version 2.0 will be set.
	1.0	VDAFS-Version 1.0 is used.
	2.0	VDAFS-Version 2.0 is used.

*LIN value	INDEX-table size of the CATIA-model	
	<value>	Size in kilobyte. Default value = 300.

*LDA value	DATA-table size of the CATIA-model	
	<value>	Size in kilobyte. Default value = 1200.

*SIZ value	CATIA-model extension. Attention: The tolerances of the CATIA-model depends on the model-size	
	<value>	Value in mm. Default = 10.000.0
	No data	The processor tries to determine the model size from the VDAFS-file. This is only possible, when the VDAFS-file was exported with the TransCAT-Processor. If this is not the case the default value will be used.

*IDT	Identifier of VDAFS-Elements	
	YES	The identifiers for CATIA-elements are taken form the VDAFS-file.
	NO	All elements in CATIA contain CATIA-Standard-Identifier.

VDAFS-Processor

*SET	VDAFS-Set -> CATIA-Set	
	YES	Sets from the VDAFS-file are also transferred in sets within the CATIA-file.
	NO	Sets from the VDAFS-files will be ignored.

*LAY	Treatment of VDAFS-Groups	
	YES	The elements of different 'groups' from the VDAFS-file will be assigned to different layers in the CATIA-model. (compare: *GRE).
	NO	'Groups' from the VDAFS-file will be ignored in the CATIA-model.

*SCV	In VDAFS each CONS element has an additional 3D-curve.	
	ALL	This 3D-curve is taken over in CATIA.
	EDG	The 3D curve will not be taken over in CATIA; only the Edge is transferred.

*NOS	Supporting Surfaces into NoShow.	
	YES	The surfaces based on faces are assigned to 'NoShow' in CATIA.
	NO	The surfaces based on faces are shown in "Show' in CATIA.

*PST	Treatment of VDAFS-PSET – Set of points	
	CONT	All elements 'PSET' from the VDAFS-file are shown as constraints in CATIA.
	POINT	All elements 'PSET' from the VDAFS-file are shown as single points in CATIA.
	LINE	All elements 'PSET' from the VDAFS-file are transferred to CATIA as lines, whereby each time a line is drawn from point to point.

*MDI	Treatment of VDAFS-MDI – Point and Vector	
	CONT	All elements 'MDI' from the VDAFS-file are shown as constrains in CATIA.
	LINE	All elements 'MDI' from the VDAFS-file are transferred to CATIA as lines where by each time as line is drawn from point to point.

*SPL	As VDAFS does not recognize lines but only curves, lines are shown in VDAFS as degree 1 curves.	
	NO	Degree 1 curves are transferred to CATIA also as curves.
	YES	Degree 1 curves are transferred as lines in CATIA.

*TOP	Treatment of VDAFS-TOP. If the top results in a closed skin, a solid or volume is created.	
	SOL	Create a solid.
	VOL	Create a volume.

*REF	Reference Axis System in CATIA	
	ABS	The reference axis system is the model's absolute axis system.
	REL	The reference axis system is the model's current axis system.

*TAX	Treatment of VDAFS-TMAT	
	TRA	The VDAFS-element 'TMAT' will be transferred as CATIA-TRANSFORMATION.
	AXS	The VDAFS-element 'TMAT' will be transferred as CATIA-AXIS.

*KOM	Comments of the VDAFS-file	
	NO	The comments of the VDAFS-file will not be written into the protocol file.
	YES	The comments of the VDAFS-file will be written into the protocol file.

*POE (POINT) *PSE (PSET) *MDE (MDI) *CIE (CIRCLE) *CUE (CURVE) *SUE (SURFACE) *COE (CONS) *FAE (FACE) *TOE (TOP)	Transfer of elements	
	YES	The relevant elements from the VDAFS-file will be transferred.
	NO	The relevant elements from the will not be transferred. How ever essential base-elements will be created.

*GRE	Treatment of element GROUP	
	YES	GROUP will be processed according to Panel "Parameter": Image GROUP
	NO	GROUP is ignored.

*POC	(POINT)	Definition of element colours in the CATIA-Model	
*PSC	(PSET)	0 bis 125	Value of colour (0 = no colour)
*MDC	(MDI)		
*CIC	(CIRCLE)		
*CUC	(CURVE)		
*SUC	(SURFACE)		
*COC	(CONS)		
*FAC	(FACE)		
*TOC	(TOP)		

2.2.4 CATIA -> VDAFS Parameter

Description of Keywords

***WDI**	Name of the CATIA-model file where the CATIA-model will be stored.	
	<name>	Name of model file

***MOD**	Name of the stored CATIA-model (specified in the next line) Example: *MOD VDAFS MODEL 1	
	<name>	Name of model

***VDF**	File name of the VDAFS-file which will created from the specified CATIA-model. If the path name is not specified the file is in the current directory.	
	<name>	Name of the created VDAFS-file

*ATE	VDAFS-file in ASCII or EBCDIC-Code	
	ASCII	File is created in ASCII-Code
	EBCDIC	File is created in EBCDIC-Code.

*REP	Right to Replace	
	NO	If a file with the same name exists it will not be replaced. An error message will appear.
	YES	An existing file with the same name will be replaced

*ERR	Error Reaction	
	NO	If an error occurs the VDAFS processing will be continued.
	YES	If an error occurs the VDAFS processing will be interrupted.

VDAFS-Processor

*VER	VDAFS-Version for the Conversion	
	2.0	VDAFS-version 2.0 is used.
	1.0	VDAFS-version 1.0 is used.

*LIM	No element 'Line' exists in VDAFS. Therefore CATIA's lines are converted.	
	CURVE	The lines are transferred as curves.
	PSET	The lines are transferred as PSET (set of points)

*PLA value *PLA INFINITY	The element 'plane' does nit exist in VDAFS. There fore are not converted into planar surfaces.	
	<value>	Size of surfaces.
	INFINITY	Size of surface is 'unlimited'.

*CSD	Treatment of Constraints in VDAFS	
	MIXED	Constraints from CATIA will be converted to MDI (point and vector) in VDAFS if any Tangents, curvatures or normals have been defined, otherwise they will be transferred as PSET (set of points).
	MDI	Constraints from CATIA will be converted to MDI's in VDAFS.
	PSET	Constraints from CATIA will be converted to PSET's in VDAFS.
	POINT	Constraints from CATIA will be converted to single points in CATIA.

*TAN	Contrary to constraints from CATIA that can contain tangents and normals, a MDI can only have one of the two conditions.	
	TANG	Only the tangents conditions from CATIA will be adopted.
	NORM	Only the normal conditions from CATIA will be adopted.

*LAY	Treatment of LAYER in VDAFS	
	YES	If CATIA-elements are on various layers, are shown as group-elements in VDAFS.
	NO	CATIA's layer structure will be ignored.

*COM	CATIA-Identifier that cannot be used for VDAFS are put out as comment.	
	YES	Output as comment.
	NO	CATIA-Identifier that cannot be used will be lost.

*LCK	As the tolerances of the model can be defined by the user in CATIA, it can happen that an other system face tolerance problems when reading CATIA's VDAFS-data, because its tolerances have been set narrower. Therefore it may happen that the border of a face is not closed and therefore the face cannot be created. 'Big' gaps can be closed by small lines, so that the target system can be read successfully. The narrower tolerance can be set in panel 'Parameter 2'.	
	NO	Possible existing gaps of a face contour will not be closed.
	YES	Possible existing gaps of a face contour will be closed if the gaps are bigger or equal to a pre-set tolerance.

*TOK	Tolerance for tolerance-gaps in a face contour if it is to be closed automatically. Compare Parameter 1:Face boundaries	
	<value>	Tolerance value: 1.E-10 value< 1.0
	0.0	TOLPT (identicalPointTolerance)

*REF	Reference Axis System in CATIA	
	ABS	The reference axis system of the VDAFS-file is the absolute axis system of the CATIA-model.
	REL	The reference axis system of the VDAFS-file is the current axis system of the CATIA-model.

*TAX	Treatment of TMAT in VDAFS	
	TRA	Transformations from CATIA will be transferred as VDAFS-element TMAT.
	AXS	CATIA-axis systems will be transferred as VDAFS-element TMAT.

*TSH	Output of elements from CATIA Show and NoShow Area	
	ALL	Output of all elements
	SHOW	Output of the elements from the CATIA-Show-area.
	NOSHOW	Output of the elements from the CATIA-NoShow-Area.

*SES	Selection of SET's from which elements in VDAFS are transferred.	
	<sets>	List of sets divided by comma. (Example: **SET1,**SET2,*SET3) Alternative: several sets can be specified by a chain of characters and '*'. 'SET*' transfers all sets, whose name begins with 'SET'.
	No data	All sets are transferred.

*LAS	Selection of Layers from which elements in VDAFS will be transferred.	
	<layer numbers)	Layer numbers (0-254) must be separated by comma. (Example: 10,11,12,13,14,15)
	No data	All layers are transferred.

*WMD	Output of elements from Space- and/or Drafting mode	
	SPC+DRW	all elements
	SPC	SPC elements
	DRW	DRW elements

		Transfer of Elements	
*PTS	(Point)	YES	The relevant elements from the VDAFS- are transferred.
*LNS	(Line)	NO	The relevant elements from the VDAFS- are not transferred. However essential basis-elements will be created.
*CRV	(Curve)		
*PLN	(Plane)		
*SUR	(Surface)		
*FAC	(Face)		
*SKI	(Skin)		
*CST	(Constr.)		
*CCV	(Com.Crv)		
*TRA	(Transfor.)		
*SOL	(Solid)		
*DIT	(Ditto)		

		These parameters contain data for the VDAFS-Header.	
***SFI**	(Company)	<text>	Any chosen text. The use of umlauts is not allowed.
***SNA**	(Name)		
***SAD**	(Adress)		
***STE**	(Phone)		
***SPR**	(Project)		
***SOB**	(Object Code)		
*SVA	(Variant)		
*SVE	(Confidentiality)		
*SVG	(Validation Date)		
***EFI**	(Company)		
***ENA**	(Name/Department)		

3 Appendix

3.1 Description of VDAFS-Database

VDAFS-Files are set up sequentially. The file is made up of lines of 80 characters. In the columns 73-80 of each line is a rising, but not necessarily continuous sequence-number. Leading numeration spaces are zero filled.

The file contains geometrical and non-geometrical elements. The non-geometrical elements serve only the file's structure and comment.

The first line of a VDFAS-file is always the begin code. It defines the text-lines (at least 20) that further identify the relevant file. These lines must at least contain the following information:

- VDAFS-Version (at present 1.0 or 2.0)
- Company (Sending)
- Name (Sending)
- Phone
- Address
- Creation Date
- Project
- Object Code
- Company (Receiving)
- Name/Department (Receiving)

A description of the geometrical elements by an exactly determined Syntax follows in the next section of the VDAFS-file.

Several of these elements can be combined to groups by an element that serves the structure of the file. With this the partial reading of a VDAFS-file is also possible.

In addition to that it is possible to add any comment lines in as many places as required. The VDAFS-file is concluded by the end code. This is always the last line of the file.

3.2 Syntax of VDAFS-Format

As mentioned in the former section, a VDAFS-file contains geometrical and non-geometrical elements.

The description of all elements in initiated by the name, followed by an equals sign and the element identifier. If parameters exit, they are then written divided by commas.
The element names can only be written in capital letters A – Z or by digits 0 – 9. The first character of a name has to be a letter.
According to the definition parameters can be written either in integer or real numbers. If real numbers are used for the parameter the decimal point (.) must always be used. If this is not stated the system interprets the parameter as integer, which leads to errors. The parameter can take several lines. However, a new parameter starts with each new line. It is therefore not permitted to continue a number that started in one line to the next. Logically the parameter separator is seen as belonging to the number.

An element separator does not exist. The last parameter that belongs to an element is only zero filled and/or followed by a sequence number. The geometrical elements that are supported by the VDAFS-exchange format (version 2.1) are as follows:

3.2.1 Geometrical Elements

Point	name = POINT/x,y,z	
	name	name = POINT/x,y,z
	x,y,z	Real coordination of the point
	Example	P001=POINT/10.5,-10.,12.5

Set of Points	name = PSET/n,(n)*[x,y,z]	
	name	name of set of points
	n	Number of points (n = integer value)
	(n)*[x,y,z]	Exact n co ordinations have to be stated for n points.
	Example	PF001=PSET/2,5.,3.,0.,2.5,0.55,10.

Point and Vector	name = MDI/n,(n)*[x,y,z,vx,vy,vz]	
	name	name of point-vector set
	n	number of sextuples (integer value)
	(n)* [x, y, z, vx, vy, vz]	Exactly 3 n-times 3 coordinates and 3 vector-components have to be stated for the n points.
	Example	DI1=MDI/2,5.,3.,0.,1.3,9.2,1.,2.5,.5,1.,.9,1.2,1.

Circle	name = CIRCLE / x,y,z,r,vx,vy,vz,wx,wy,wz,a,b	
	name	Name of circle
	x,y,z	Co ordinates of the circle centre
	vx,vy,vz	Components of the orthogonal vector
	wx,wy,wz	Definition of circle level
	a,b	Start/end angle in degree
	Example	CIR1 = CIRCLE /1.0,1.0,1.4,1.0,-0.5, -0.5,0.7,0.7,-0.7,0.0,30.0,138.0

Curve	name = CURVE/n,(n+1)*[par],(n)*[iord,(iord)*[ax], (iord)*[ay], [iord)*[az]]	
	name	Name of curve
	n	Number of segments which form the curve
	iord	Relevant polynomial order of curve segments
	par	Global parameter values at start/end points of the segment
	ax,ay,az	Co efficient of current curve segment
	Example	See Appendix

Surface	name = SURF/nps,npt,((nps+1))*[pars],((npt+1))*[part] ((nps*npt))*[iordu,iordv,((iordu*iordv))*[ax], ((iordu*iordv))*[ay],((iordu*iordv))*[ax]]	
	name	Name of surface
	nps,npt	Number of surface segments in u- and v-direction
	iordu,iordv	Polynomial order of the current surface segment in u- and v-direction.
	pars,part	Definition of surface segments in s- and t-direction
	ax,ay,az	Co efficient of the current surface segment
	Example	See Appendix

Curve on Surface	name = CONS / surfname,curvename,s1,s2,np, (np=1))*[parp], (np)*[iordp, (iordp0*[as], (iordp)*[at]]	
	name	name of curve on surface
	surfname	elementname SURF
	curvename	elementname CURVE
	s1,s2	Global parameter values of the curve
	np	Number of curve segments for the two dimensional curve
	iordp	Relevant polynomial of curve segments
	as,at	Relevant co efficient of curve segments
	parp	Global parameter values of the two dimensional curve at the relevant start or end points of the segments
	Example	See Appendix

Limited Surface	name = FACE / surfname,m,m)* [n,(n)*[consname,w1,w2]]	
	name	Name of a limited surface
	surfname	Elementname SURF
	consname	Elementname CONS
	m	Number of closed surface curve chains
	n	Number of CONS elements of a surface curve chain
	w1,w2	Global parameter values of the surface curves which determine start and end value of a part of a CONS-element.
	as,at	Relevant to efficient of curve segments
	parp	Global parameter values of the two dimensional curve at the relevant start or finishing points of the segments
	Example	See Appendix

Surface Union	name = TOP/m,(m)*[(2)*[fsname,n,(n)* [consname,w1,w2]], icont]	
	name	Name of Surface union
	fsname	Name of an element SURF or an element FACE
	consname	Name of an element CONS
	m	Number of pairs of touching surfaces (pieces) (SURF/FACE)
	n	Number of CONS-elements of a surface curve chain
	w1,w2	Global parameter values of the surface curves which determine start and end value of a part of a CONS-element.
	icont	Transition type (0=constant, 1-tangential constant, 2=tangential and curvature constant)
	Example	See Appendix

3.2.2 Non-Geometrical Elements

The following non-geometrical elements are supplied by the VDAFS exchange format:

Begin code (The VDAFS-file has to start with this)	name = HEADER /n	
	name	Name of the begin code
	n (n > 19)	Number of text lines which follow the initial line. No comment lines are allowed within the begin code.

Comment	$$text	
	text	Any text Each line that is to be used as comment line has to be marked by $$ in the first two columns. No comment lines are allowed within the begin code. Otherwise comments can be added anywhere.

Structure	name = BEGINSET; name = ENDSET	
	name	Name of structure. The structure element is used to combine several elements to groups. This makes it possible to process individual data selectively. The assignment of one element to a group must be clearly possible. The names in BEGINSET and ENDSET must be identical. Each BEGINSET has to be followed by ENDSET as next structure order. The in boxing or overlapping of groups is not allowed.

Group	name = GROUP / n,(n)*[elementname]	
	name	Name of the group
	n	Number of elements in the group
	elementname	Names of elements; allowed are: POINT PSET, MDI, CIRCLE, CURVE, SURF, CONS, FACE, TOP, GROUP

Transformations-matrix	name = TMAT / c11,c12,c13,c21,c22,c23,c31,c32,c33,c41, c42,c43	
	name	Name of transformation matrix
	c11-c43	Co efficient of transformation matrix for rotation, shearing, scaling and translation.

Transformation list	name = TLIST / tmatname,n,(n)*[elementname]	
	name	Name of transformation list
	n	Number of elements in the transformation list
	tmatname	Name of a transformation matrix
	elementname	Names of elements Allowed are: POINT, PSET, MDI, CIRCLE, CURVE, SURF, CONS, FACE, TOP, GROUP

End code (must always be the last line of the VDAFS-file)	name = END	
	name	Name of end code; must correspond with name of the begin code.

3.3 Example

```
TCVDAFS = HEADER / 23                                                          00000010
************************************************************************      00000020
VDAFS VERSION      : 2.0                                                       00000030
------------- ANGABEN UEBER DEN ABSENDER -------------------------------      00000040
SENDERFIRMA        : -                                                         00000050
ANSPRECHPARTNER    : -                                                         00000060
-TELEFON           : -                                                         00000070
-ADRESSE           : -                                                         00000080
ERZEUGENDES SYSTEM : CATIA SOLUTIONS V4 RELEASE 1.7 FR 4.1.7PVER:3.1.1         00000090
ERZEUGUNGSDATUM    : 17.06.1999                                                00000100
SENDE-FILENAME     : MESSE VDAFS SOLID FACE AUGE                               00000110
------------- ANGABEN UEBER DAS TEIL -----------------------------------      00000120
PROJEKT            : -                                                         00000130
OBJEKTKENNUNG      : -                                                         00000140
VARIANTE           : -                                                         00000150
VERTRAULICHKEIT    : -                                                         00000160
GUELTIGKEITSDATUM  :                                                           00000170
------------- ANGABEN UEBER/FUER DEN EMPFAENGER ------------------------      00000180
EMPFAENGERFIRMA    : -                                                         00000190
EMPFAENGERNAME     : -                                                         00000200
************************************************************************      00000210
TOLERANZ           :  .100 MM                                                  00000220
WINKELTOLERANZ     : 0.229 GRAD                                                00000230
************************************************************************      00000240
$$ MODELLNAME =                                                                00000250
$$MESSE VDAFS SOLID FACE AUGE                                                  00000260
$$ MODELL-FILE =                                                               00000270
$$ FRANK                                                                       00000280
SET1     = BEGINSET                                                            00000290
SUR15    = SURF   /        1,         1,                                       00000300
           .0000000000000E+00,   .1000000000000E+01,   .0000000000000E+00, 00000310
           .1000000000000E+01,                                                 00000320
  2, 10,   .3999999930750E+02,   .0000000000000E+00,  -.8390410615230E+02, 00000330
           .0000000000000E+00,   .5017677023370E-05,   .0000000000000E+00, 00000340
           .1093834737930E+01,   .0000000000000E+00,   .9666487066340E-05, 00000350
           .0000000000000E+00,  -.4283093193210E-02,   .0000000000000E+00, 00000360
           .1609711928100E-05,   .0000000000000E+00,   .7632484223140E-05, 00000370
           .0000000000000E+00,  -.3528197065230E-07,   .0000000000000E+00, 00000380
           .6789917504160E-07,   .0000000000000E+00,  -.3000000000000E+02, 00000390
           .6000000000000E+02,   .0000000000000E+00,   .0000000000000E+00, 00000400
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000410
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000420
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000430
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000440
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000450
           .0000000000000E+00,   .2199999930160E+02,   .0000000000000E+00, 00000460
           .0000000000000E+00,   .0000000000000E+00,  -.1173315633820E+02, 00000470
           .0000000000000E+00,  -.3442303187590E-04,   .0000000000000E+00, 00000480
           .7655278960940E-01,   .0000000000000E+00,  -.8989034283960E-04, 00000490
           .0000000000000E+00,  -.1271276456490E-03,   .0000000000000E+00, 00000500
          -.3622585748930E-04,   .0000000000000E+00,   .1091726349160E-04, 00000510
           .0000000000000E+00,  -.1573753910690E-05,   .0000000000000E+00  00000520
SUR19    = SURF   /        4,         1,                                       00000530
           .0000000000000E+00,   .1000000000000E+01,   .2000000000000E+01, 00000540
           .3000000000000E+01,   .4000000000000E+01,   .0000000000000E+00, 00000550
           .1000000000000E+01,                                                 00000560
  6,  2,   .3999916546500E+02,   .7458735964170E-01,  -.1583068683690E+02, 00000570
           .3621837423090E+01,   .2755527139980E+01,  -.1535046646820E+01, 00000580
          -.2178508500090E+01,  -.3549521654690E-01,   .2533634878680E+01, 00000590
          -.1968341940300E+01,   .2884994056650E+00,   .1574921729160E+00, 00000600
          -.1302615604020E-03,  -.2157486225070E+02,  -.4449693759460E+00, 00000610
           .1037714258370E+02,  -.7467611312010E+01,   .1947854431960E+01, 00000620
          -.5924350580180E-04,   .3012418680650E+01,   .7678655414710E-01, 00000630
          -.3712136166460E+01,   .3540631566560E+01,  -.1100709816860E+01, 00000640
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000650
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000660
           .2490486745230E+02,   .7249312261590E-10,  -.5767120114800E-09, 00000670
           .1601556220980E-08,  -.1778897029680E-08,   .6830092047490E-09, 00000680
  6,  2,   .2908538390410E+02,  -.3698908347000E+02,  -.1315776338610E+02, 00000690
           .1341488694180E+02,  -.7910517958220E+01,   .2397823338810E+01, 00000700
          -.1202719199690E+01,   .2274150961250E+01,  -.1345816207830E+01, 00000710
           .1025928523820E+01,  -.3897393128500E+00,   .1017482176900E+00, 00000720
          -.1716257618460E+02,  -.2440735178020E+02,   .2335410391680E+02, 00000730
          -.9217424766640E+01,   .4480428384910E+01,  -.6556353262500E+00, 00000740
           .1816931574530E+01,   .1465905161200E+01,  -.2506392961000E+01, 00000750
           .2616624407010E+01,  -.1674251899190E+01,   .4102657993390E+00, 00000760
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000770
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00000780
           .2490486745230E+02,   .4924061158820E-10,  -.2574651605030E-09, 00000790
           .5403180125540E-09,  -.5206644004830E-09,   .1886029110660E-09, 00000800
  6,  2,  -.1315927062960E+02,  -.2092589165910E+02,   .7361497126870E+00, 00000810
           .7090548979780E+00,  -.1434574592510E+00,   .2881995410480E+00, 00000820
           .4635529823900E+00,   .7888137423410E+00,   .1136725260540E+00, 00000830
           .2200212493200E-01,   .7663169627190E-01,  -.3386466347200E-01, 00000840
          -.2360845575590E+02,   .4552391611490E+01,   .3921522729840E+01, 00000850
           .2961594405560E+00,   .2650078727760E+00,  -.4812129875830E-02, 00000860
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      6,  .260617275644E+00,   .927645305014E-01,   .356067271862E-01, 00003050
          .403907839734E-02,   .349580162265E-02,  -.830265110910E-03, 00003060
          .757623285590E+00,   .147527917736E+00,  -.105854897476E-01, 00003070
         -.813758060807E-02,   .296555293866E-02,  -.426466149017E-02, 00003080
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      6,   .395693148241E+00,   .918983645454E-01,   .138203075973E-01, 00003090
           .149227005976E-02,  -.282490551866E-02,  -.160050591082E-03, 00003100
           .885129024418E+00,   .456881597326E-01,  -.144325449291E-01, 00003110
          -.502761028037E-02,  -.159021425235E-02,   .905567081235E-03  00003120
CRV204   = CURVE  /       1,                                            00003130
           .000000000000E+00,   .100000000000E+01,                      00003140
      6,  -.393178901415E+01,   .128785870857E-12,  -.122213350551E-11, 00003150
           .370725672383E-11,  -.442668124379E-11,   .180655490567E-11, 00003160
          -.186813803498E+02,   .186813790914E+02,   .577671244173E-11, 00003170
          -.161239910312E-10,   .182365234025E-10,  -.721334103559E-11, 00003180
           .187658972357E+02,  -.213162820728E-13,   .682121026330E-12, 00003190
          -.311928260999E-11,   .458300064565E-11,  -.209965378417E-11  00003200
XRV2041  = CONS   / SUR15   ,CRV204  ,                                  00003210
           .000000000000E+00,   .100000000000E+01,                      00003220
      1,   .000000000000E+00,   .100000000000E+01,                      00003230
      6,   .188643660837E+00,   .311356318192E+00,  -.126880679856E-11, 00003240
          -.166002332302E-11,   .162930258141E-11,  -.334215739780E-12, 00003250
           .525484880725E+00,   .000000000000E+00,   .000000000000E+00, 00003260
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00  00003270
FAC27    = FACE   / SUR15   ,       1,                                  00003280
      3,            XRV2021 ,   .000000000000E+00,   .100000000000E+01, 00003290
                    XRV2031 ,   .400000000000E+01,   .000000000000E+00, 00003300
                    XRV2041 ,   .000000000000E+00,   .100000000000E+01  00003310
CRV205   = CURVE  /       3,                                            00003320
           .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00003330
           .300000000000E+01,                                           00003340
      6,  -.393178901415E+01,  -.930084414638E+01,   .365127005385E-01, 00003350
           .326402018749E-01,   .315015463703E-02,   .105947386562E-02, 00003360
          -.248793892617E+02,   .574571659752E+00,   .684716449582E+00, 00003370
           .799654807947E-02,   .393853963691E-02,  -.289691272203E-03, 00003380
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00, 00003390
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00, 00003400
      6,  -.131592706296E+02,  -.209258916591E+02,   .736149712687E+00, 00003410
           .709054897978E+00,  -.143457459251E+00,   .288199541048E+00, 00003420
          -.236084557559E+02,   .455239161149E+01,   .392152272984E+01, 00003430
           .296159440556E+00,   .265007872776E+00,  -.481212987583E-02, 00003440
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00, 00003450
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00, 00003460
      6,  -.324952155962E+02,  -.125475457141E+02,   .315824406557E+01, 00003470
           .337526190288E+00,   .249830537545E+01,  -.951130889197E+00, 00003480
          -.145781862312E+02,   .109166165876E+02,   .362616011586E+01, 00003490
           .555864726581E+00,   .933675265842E-01,  -.613963936146E+00, 00003500
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00, 00003510
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00  00003520
XRV2051  = CONS   / SUR19   ,CRV205  ,                                  00003530
           .000000000000E+00,   .300000000000E+01,                      00003540
      3,   .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00003550
           .300000000000E+01,                                           00003560
      2,   .178666868370E+01,   .213331316299E+00,   .000000000000E+00, 00003570
           .000000000000E+00,                                           00003580
      2,   .200000000000E+01,   .100000000000E+01,   .000000000000E+00, 00003590
           .000000000000E+00,                                           00003600
      2,   .300000000000E+01,   .100000000000E+01,   .000000000000E+00, 00003610
           .000000000000E+00                                            00003620
CRV206   = CURVE  /       1,                                            00003630
           .000000000000E+00,   .100000000000E+01,                      00003640
      6,  -.399998165682E+02,   .692813320447E+00,  -.200657268579E-10, 00003650
           .574402747588E-10,  -.660378418615E-10,   .264392951976E-10, 00003660
          -.141210694984E-03,   .143714297544E-04,   .299781900692E-16, 00003670
          -.830498864124E-16,   .912085077603E-16,  -.351823604972E-16, 00003680
           .000000000000E+00,   .791926918266E+01,   .267341704330E-12, 00003690
          -.103739239421E-11,   .141842093626E-11,  -.628830321148E-12  00003700
XRV2061  = CONS   / SUR19   ,CRV206  ,                                  00003710
           .000000000000E+00,   .100000000000E+01,                      00003720
      1,   .000000000000E+00,   .100000000000E+01,                      00003730
      2,   .400000000000E+01,   .000000000000E+00,   .000000000000E+00, 00003740
           .317980780176E+00                                            00003750
CRV207   = CURVE  /       4,                                            00003760
           .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00003770
           .300000000000E+01,   .400000000000E+01,                      00003780
      6,  -.393178901416E+01,  -.906994239101E+01,   .465535279361E-01, 00003790
           .319518074228E-01,   .613753573956E-02,  -.316891968723E-02, 00003800
          -.236349496784E+02,   .462466755686E+00,   .650150529682E+00, 00003810
           .897281018558E-02,   .254147366461E-02,   .141225055913E-03, 00003820
           .141929065725E+02,  -.124705271250E+01,  -.111906455707E+00, 00003830
           .571331042307E-02,   .252799804863E-02,  -.956555604230E-03, 00003840
      6,  -.129208907184E+02,  -.206847464305E+02,   .773382194338E+00, 00003850
           .720897516289E+00,  -.905950468714E-01,   .242609159828E+00, 00003860
          -.225105390555E+02,   .420153518584E+01,   .381273304289E+01, 00003870
           .339269813302E+00,   .156474190522E+00,   .377853320358E-01, 00003880
           .128412321571E+02,  -.338057641067E+01,  -.378378108008E+00, 00003890
           .282363303013E-01,   .234240140024E+00,  -.172803559350E-01, 00003900
      6,  -.319593433254E+02,  -.513653305122E+01,   .490410396686E+00, 00003910
           .128218811486E+00,   .133614411310E-01,  -.342541706558E-02, 00003920
          -.139627414909E+02,   .435218360560E+01,   .647163693715E+00, 00003930
          -.519059380256E-02,  -.275442782672E-02,   .797227072422E-02, 00003940
           .932747375284E+01,  -.101618975283E+01,   .846868396302E-01, 00003950
           .563824116542E-01,  -.113092552917E-01,   .154704733176E-02, 00003960
      6,  -.364673111444E+02,  -.522757306994E+01,   .177557953346E+01, 00003970
           .782890632139E+00,  -.190367653019E+00,   .197784507289E-01, 00003980
          -.896336694252E+01,   .792546442295E+01,   .137844006028E+01, 00003990
          -.229114684829E+00,  -.128588020466E+00,   .170350648276E-01, 00004000
           .844259104333E+01,  -.100137782892E+01,   .394297857077E+00, 00004010
           .134273029971E+00,  -.672874661212E-01,   .167725457388E-01  00004020
XRV2071  = CONS   / SUR19   ,CRV207  ,                                  00004030
           .000000000000E+00,   .400000000000E+01,                      00004040
      4,   .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00004050
           .300000000000E+01,   .400000000000E+01,                      00004060
      5,   .178845892836E+01,   .211908284693E+00,  -.364372894992E-03, 00004070
          -.586745335971E-05,   .302729979293E-05,   .569884846793E+00, 00004080
          -.500361608860E-01,  -.455412022735E-02,   .278284013794E-03, 00004090
           .384934190393E-04,                                           00004100
      5,   .200003086214E+01,   .100113785324E+01,  -.306955344200E-02, 00004110
           .369421107463E-03,   .153141695755E-02,   .515611343113E+00, 00004120
          -.135209197140E+00,  -.153123469259E-01,   .126585441540E-02, 00004130
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          .816847402850E-02,                                          00004140
      4,   .300000000000E+01,   .415585432539E+00,   .942671611666E-03, 00004150
           .168226314615E-03,   .374524127490E+00,  -.407371244367E-01, 00004160
           .368858617923E-02,   .151802554940E-02,                     00004170
      5,   .341669633047E+01,   .581247300023E+00,   .264269140838E-02, 00004180
          -.261521477231E-03,  -.324999455699E-03,   .338993614782E+00, 00004190
          -.400705026447E-01,   .161272942051E-01,   .371841010958E-02, 00004200
          -.788036340056E-03                                          00004210
CRV208   = CURVE  /        1,                                         00004220
           .000000000000E+00,   .100000000000E+01,                    00004230
      6,  -.393178901415E+01,   .957323109674E-11,   .487929696646E-09, 00004240
          -.170832858970E-08,   .183607395954E-08,  -.634030605795E-09, 00004250
          -.248793892617E+02,   .124439438701E+01,   .443463921513E-04, 00004260
           .833862600302E-06,   .157211488272E-07,   .359879237521E-09, 00004270
           .000000000000E+00,   .141929105352E+02,  -.388816761365E-05, 00004280
          -.732009297622E-07,  -.138574307584E-08,  -.302620151160E-10  00004290
XRV2081  = CONS   / SUR19   ,CRV208  ,                                 00004300
           .000000000000E+00,   .100000000000E+01,                    00004310
      1,   .000000000000E+00,   .100000000000E+01,                    00004320
      6,   .178666868370E+01,   .175514299959E-02,   .344067550395E-04, 00004330
           .681011056609E-06,   .135792999295E-07,   .309553009050E-09, 00004340
           .000000000000E+00,   .569885181224E+00,  -.323389104441E-06, 00004350
          -.108034607330E-07,  -.201484320414E-09,  -.363921364004E-10  00004360
FAC29    = FACE   / SUR19   ,        1,                                00004370
      4,            XRV2051 ,   .000000000000E+00,   .300000000000E+01, 00004380
                    XRV2061 ,   .000000000000E+00,   .100000000000E+01, 00004390
                    XRV2071 ,   .400000000000E+01,   .000000000000E+00, 00004400
                    XRV2081 ,   .100000000000E+01,   .000000000000E+00  00004410
CRV209   = CURVE  /        3,                                         00004420
           .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00004430
           .300000000000E+01,                                         00004440
      6,  -.393103737148E+01,  -.890557217698E+01,   .517802341606E-01, 00004450
           .408059944651E-01,   .275319419334E-02,   .154225340944E-02, 00004460
          -.186814156485E+02,   .372822786117E+00,   .657286527962E+00, 00004470
           .372167501212E-02,   .421052699428E-02,  -.125894291216E-04, 00004480
           .187654518727E+02,  -.131804719331E+01,  -.128003914015E+00, 00004490
           .718438842890E-02,   .111360650747E-02,   .182268653288E-04, 00004500
      6,  -.127397278722E+02,  -.246288028138E+02,   .138837323970E+01, 00004510
           .199364814235E+01,  -.899813315197E+00,   .137657758164E+01, 00004520
          -.176433867219E+02,   .487789019578E+01,   .588618243859E+01, 00004530
          -.474696303098E+00,   .203245191153E+01,  -.936852626496E+00, 00004540
           .173277169872E+02,  -.440190324683E+01,  -.811417251585E+00, 00004550
           .531061618137E+00,  -.205269808161E+00,   .414269778821E+00, 00004560
      6,  -.335097450376E+02,  -.391783037135E+01,   .151733908884E+01, 00004570
           .404379962485E+00,  -.770016114199E-01,  -.285125432698E-02, 00004580
          -.625841110556E+01,   .581153742453E+01,   .626668169018E+00, 00004590
          -.130773996283E+00,  -.266186723910E-01,  -.272537593128E-01, 00004600
           .128544580775E+02,  -.990168865228E+00,   .355226821570E+00, 00004610
           .124669198234E+00,  -.191749478420E-01,  -.311911047191E-02  00004620
XRV2091  = CONS   / SUR22   ,CRV209  ,                                 00004630
           .000000000000E+00,   .300000000000E+01,                    00004640
      3,   .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00004650
           .300000000000E+01,                                         00004660
      2,   .177457517006E+01,   .225424829945E+00,   .100000000000E+01, 00004670
           .000000000000E+00,                                         00004680
      2,   .200000000000E+01,   .100000000000E+01,   .100000000000E+01, 00004690
           .000000000000E+00,                                         00004700
      2,   .300000000000E+01,   .100000000000E+01,   .100000000000E+01, 00004710
           .000000000000E+00                                          00004720
CRV210   = CURVE  /        1,                                         00004730
           .000000000000E+00,   .100000000000E+01,                    00004740
      6,  -.393070048041E+02,   .535843252167E+00,   .375537386947E+01, 00004750
          -.104802050885E+00,  -.538771566708E+00,   .736520767154E-01, 00004760
          -.130094914814E-03,  -.206412258945E-02,  -.356285541951E-02, 00004770
           .496263459127E-03,   .502405497942E-03,  -.935360326251E-04, 00004780
           .791926933819E+01,   .612010249777E+01,  -.323882361659E+00, 00004790
          -.156265189881E+01,   .819166747030E-01,   .871369236131E-01  00004800
XRV2101  = CONS   / SUR22   ,CRV210  ,                                 00004810
           .000000000000E+00,   .100000000000E+01,                    00004820
      1,   .000000000000E+00,   .100000000000E+01,                    00004830
      2,   .400000000000E+01,   .000000000000E+00,   .000000000000E+00, 00004840
           .100000000000E+01                                          00004850
CRV211   = CURVE  /        3,                                         00004860
           .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00004870
           .300000000000E+01,                                         00004880
      6,  -.393150119503E+01,  -.905940288436E+01,   .386330011100E-01, 00004890
           .277234150369E-01,   .331149318263E-02,   .107463381900E-02, 00004900
          -.236350158584E+02,   .462256664467E+00,   .651866780968E+00, 00004910
           .702184577079E-02,   .374241891912E-02,  -.545973888278E-03, 00004920
           .141928875614E+02,  -.124557472728E+01,  -.113204001803E+00, 00004930
           .632293211131E-02,   .906445408642E-03,   .114365483501E-04, 00004940
      6,  -.129201615362E+02,  -.265192649198E+02,   .568766832924E+00, 00004950
           .314000297922E+01,  -.327822286545E+01,   .254145584076E+01, 00004960
          -.225106741222E+02,   .537321269403E+01,   .655947635971E+01, 00004970
           .118888088341E+00,   .154790572541E+01,  -.522465995383E-01, 00004980
           .128413496464E+02,  -.432811801288E+01,  -.802294660604E+00, 00004990
           .533754375487E+00,  -.213767998272E+00,   .411680914286E+00, 00005000
      6,  -.364674236686E+02,  -.509430437642E+01,   .161774542773E+01, 00005010
           .572860569203E+00,   .172249506678E+00,  -.108132262636E+00, 00005020
          -.896343785423E+01,   .771248893273E+01,   .144836852631E+01, 00005030
           .103804086589E+00,  -.340565676092E+00,   .392118897751E-01, 00005040
           .844260426441E+01,  -.973619295837E+00,   .348222069981E+00, 00005050
           .127735964954E+00,  -.273948492611E-01,   .172118394396E-02  00005060
XRV2111  = CONS   / SUR22   ,CRV211  ,                                 00005070
           .000000000000E+00,   .300000000000E+01,                    00005080
      3,   .000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00005090
           .300000000000E+01,                                         00005100
      2,   .178533955414E+01,   .214660445858E+00,   .000000000000E+00, 00005110
           .000000000000E+00,                                         00005120
      2,   .200000000000E+01,   .100000000000E+01,   .000000000000E+00, 00005130
           .000000000000E+00,                                         00005140
      2,   .300000000000E+01,   .100000000000E+01,   .000000000000E+00, 00005150
           .000000000000E+00                                          00005160
CRV212   = CURVE  /        1,                                         00005170
           .000000000000E+00,   .100000000000E+01,                    00005180
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      6,  -.393178901415E+01,  -.676562020805E-03,   .378181382363E-02, 00005190
          -.634254168295E-02,   .337546328998E-02,  -.138173409843E-03, 00005200
          -.236350011718E+02,   .648953743824E+00,   .534000647224E+01, 00005210
          -.413042089152E-02,  -.124057427100E+01,   .209361470530E+00, 00005220
           .141928479891E+02,   .737495028808E+01,  -.452408383530E+00, 00005230
          -.267914586743E+01,   .777804899476E-01,   .251316110531E+00  00005240
XRV2121  = CONS   / SUR22   ,CRV212  ,                                   00005250
           .000000000000E+00,   .100000000000E+01,                       00005260
      1,   .000000000000E+00,   .100000000000E+01,                       00005270
      6,   .178534637395E+01,  -.246985320039E-01,   .802939108237E-02, 00005280
           .645883005514E-02,   .184345276896E-03,  -.726212127212E-03, 00005290
           .000000000000E+00,   .993562264718E+00,   .823215105991E-02, 00005300
          -.346300573433E-03,  -.580348814450E-03,  -.867766389600E-03  00005310
FAC30    = FACE   / SUR22   ,       1,                                   00005320
      4,            XRV2091 ,   .000000000000E+00,   .300000000000E+01, 00005330
                    XRV2101 ,   .100000000000E+01,   .000000000000E+00, 00005340
                    XRV2111 ,   .300000000000E+01,   .000000000000E+00, 00005350
                    XRV2121 ,   .000000000000E+00,   .100000000000E+01  00005360
$$ VDAFS-NAME "SUR00001" WURDE ERZEUGT FUER DAS CATIA-ELEMENT            00005370
$$ "CATIA-ELEMENT OHNE NAMEN"                                            00005380
SUR00001 = SURF   /       1,        1,                                   00005390
           .000000000000E+00,   .100000000000E+01,   .000000000000E+00, 00005400
           .100000000000E+01,                                            00005410
  2,  2,  -.324986258738E+00,   .000000000000E+00,  -.432816330649E+02, 00005420
           .000000000000E+00,  -.988469270334E-03,   .180262805276E-02, 00005430
          -.258205539897E-02,   .000000000000E+00,   .206424869764E+02, 00005440
          -.225190766809E+02,  -.206690778271E-06,   .666133814775E-15  00005450
CRV213   = CURVE  /       1,                                             00005460
           .000000000000E+00,   .100000000000E+01,                       00005470
      6,  -.393178901415E+01,  -.319706439985E+02,   .255388669440E+00, 00005480
           .600720107912E-01,   .219154469601E-02,  -.114081745404E-02, 00005490
          -.105342154918E-02,  -.152838733616E-02,   .152913943568E-03, 00005500
           .314574129633E-05,  -.175457064156E-06,  -.494647159842E-07, 00005510
           .187658972357E+02,  -.473320005323E+01,  -.171992554121E+01, 00005520
           .547138912137E-02,   .382513781793E-02,  -.232271813820E-03  00005530
XRV2131  = CONS   / SUR00001,CRV213  ,                                   00005540
           .000000000000E+00,   .100000000000E+01,                       00005550
      1,   .000000000000E+00,   .100000000000E+01,                       00005560
      6,   .833333333333E-01,   .210186233105E+00,   .763763793161E-01, 00005570
          -.242966837048E-03,  -.169862106770E-03,   .103144463548E-04, 00005580
           .833333333335E-01,   .738665381469E+00,  -.590062461499E-02, 00005590
          -.138793309165E-02,  -.506345195564E-04,   .263580039197E-04  00005600
CRV214   = CURVE  /       1,                                             00005610
           .000000000000E+00,   .100000000000E+01,                       00005620
      2,  -.393178901415E+01,   .000000000000E+00,  -.105342154919E-02, 00005630
           .150219004397E-02,   .187658972357E+02,  -.187658972341E+02  00005640
XRV2141  = CONS   / SUR00001,CRV214  ,                                   00005650
           .000000000000E+00,   .100000000000E+01,                       00005660
      1,   .000000000000E+00,   .100000000000E+01,                       00005670
      2,   .833333333337E-01,   .833333333333E+00,   .833333333335E-01, 00005680
           .000000000000E+00                                             00005690
CRV215   = CURVE  /       1,                                             00005700
           .000000000000E+00,   .100000000000E+01,                       00005710
      2,  -.399998165682E+02,   .360680275541E+02,  -.170294435135E-02, 00005720
           .215171284613E-02,  -.633688643682E-19,   .167318723575E-08  00005730
XRV2151  = CONS   / SUR00001,CRV215  ,                                   00005740
           .000000000000E+00,   .100000000000E+01,                       00005750
      1,   .000000000000E+00,   .100000000000E+01,                       00005760
      2,   .916666659092E+00,   .757442819577E-08,   .916666666667E+00, 00005770
          -.833333333333E+00                                             00005780
CRV216   = CURVE  /       1,                                             00005790
           .000000000000E+00,   .100000000000E+01,                       00005800
      6,  -.399998165682E+02,   .692813320447E+00,  -.200657268579E-10, 00005810
           .574402747588E-10,  -.660378418615E-10,   .264392951976E-10, 00005820
          -.170294435135E-02,  -.592597832721E-03,  -.121846289080E-14, 00005830
           .350976064873E-14,  -.405316723972E-14,   .162762808164E-14, 00005840
           .119312491165E-22,   .791926918266E+01,   .267341704330E-12, 00005850
          -.103739239421E-11,   .141842093626E-11,  -.628830321148E-12  00005860
XRV2161  = CONS   / SUR00001,CRV216  ,                                   00005870
           .000000000000E+00,   .100000000000E+01,                       00005880
      1,   .000000000000E+00,   .100000000000E+01,                       00005890
      6,   .916666659092E+00,  -.351669355346E+00,  -.126565424807E-13, 00005900
           .475175454540E-13,  -.627276008913E-13,   .283106871279E-13, 00005910
           .916666666667E+00,  -.160070975004E-01,   .461408689034E-12, 00005920
          -.132049926549E-11,   .152111656604E-11,  -.608735284402E-12  00005930
CRV217   = CURVE  /       1,                                             00005940
           .000000000000E+00,   .100000000000E+01,                       00005950
      6,  -.393070048041E+02,   .535843252167E+00,   .375537386947E+01, 00005960
          -.104802050885E+00,  -.538771566708E+00,   .736520767154E-01, 00005970
          -.229554228936E-02,  -.457940834279E-03,   .249961039343E-03, 00005980
           .118836433226E-03,  -.386988754716E-04,  -.258135063064E-05, 00005990
           .791926933819E+01,   .612010249777E+01,  -.323882361659E+00, 00006000
          -.156265189881E+01,   .819166747030E-01,   .871369236131E-01  00006010
XRV2171  = CONS   / SUR00001,CRV217  ,                                   00006020
           .000000000000E+00,   .100000000000E+01,                       00006030
      1,   .000000000000E+00,   .100000000000E+01,                       00006040
      6,   .564997296839E+00,  -.271774130971E+00,   .143825781217E-01, 00006050
           .693923609947E-01,  -.363765701573E-02,  -.386947140401E-02, 00006060
           .900659605124E+00,  -.123803843391E-01,  -.867659929523E-01, 00006070
           .242139779542E-02,   .124480415492E-01,  -.170169357069E-02  00006080
FAC32    = FACE   / SUR00001,       1,                                   00006090
      5,            XRV2131 ,   .100000000000E+01,   .000000000000E+00, 00006100
                    XRV2141 ,   .000000000000E+00,   .100000000000E+01, 00006110
                    XRV2151 ,   .100000000000E+01,   .000000000000E+00, 00006120
                    XRV2161 ,   .000000000000E+00,   .100000000000E+01, 00006130
                    XRV2171 ,   .000000000000E+00,   .100000000000E+01  00006140
$$ VDAFS-NAME "SUR00002" WURDE ERZEUGT FUER DAS CATIA-ELEMENT            00006150
$$ "CATIA-ELEMENT OHNE NAMEN"                                            00006160
SUR00002 = SURF   /       1,        1,                                   00006170
           .000000000000E+00,   .100000000000E+01,   .000000000000E+00, 00006180
           .100000000000E+01,                                            00006190
  2,  2,  -.436108186933E+02,   .432862141954E+02,   .000000000000E+00, 00006200
           .355271367880E-14,  -.273674425672E+02,   .000000000000E+00, 00006210
           .298566396655E+02,   .000000000000E+00,   .000000000000E+00, 00006220
           .000000000000E+00,   .000000000000E+00,   .000000000000E+00  00006230
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CRV218   = CURVE  /       1,                                          00006240
           .0000000000000E+00,   .100000000000E+01,                   00006250
      2,  -.399998165682E+02,    .360680275541E+02,  -.141210694984E-03, 00006260
           .128500353950E-02,    .000000000000E+00,   .000000000000E+00  00006270
XRV2181  = CONS   / SUR00002,CRV218  ,                                00006280
           .0000000000000E+00,   .100000000000E+01,                   00006290
      1,   .0000000000000E+00,   .100000000000E+01,                   00006300
      2,   .834215278962E-01,    .833245138771E+00,   .916623627545E+00, 00006310
           .430391214115E-04                                          00006320
CRV219   = CURVE  /       3,                                          00006330
           .0000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00006340
           .3000000000000E+01,                                        00006350
      6,  -.393178901415E+01,   -.930084414638E+01,   .365127005385E-01, 00006360
           .326402018749E-01,    .315015463703E-02,   .105947386562E-02, 00006370
          -.248793892617E+02,    .574571659752E+00,   .684716449582E+00, 00006380
           .799654807947E-02,    .393853963691E-02,  -.289691272203E-03, 00006390
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00006400
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00006410
      6,  -.131592706296E+02,   -.209258916591E+02,   .736149712687E+00, 00006420
           .709054897978E+00,   -.143457459251E+00,   .288199541048E+00, 00006430
          -.236084557559E+02,    .455239161149E+01,   .392152272984E+01, 00006440
           .296159440556E+00,    .265007872776E+00,  -.481212987583E-02, 00006450
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00006460
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00006470
      6,  -.324952155962E+02,   -.125475457141E+02,   .315824406557E+01, 00006480
           .337526190288E+00,    .249830537545E+01,  -.951130889197E+00, 00006490
          -.145781862312E+02,    .109166165876E+02,   .362616011586E+01, 00006500
           .555864726581E+00,    .933675265842E-01,  -.613963936146E+00, 00006510
           .0000000000000E+00,   .0000000000000E+00,   .0000000000000E+00, 00006520
           .0000000000000E+00,   .0000000000000E+00,   .000000000000E+00  00006530
XRV2191  = CONS   / SUR00002,CRV219  ,                                00006540
           .0000000000000E+00,   .300000000000E+01,                   00006550
      3,   .0000000000000E+00,   .100000000000E+01,   .200000000000E+01, 00006560
           .3000000000000E+01,                                        00006570
      6,   .916666666666E+00,   -.214868505349E+00,   .843517993363E-03, 00006580
           .754055361087E-03,    .727750092095E-04,   .244760112527E-04, 00006590
           .833333333333E-01,    .192443512127E-01,   .229334733330E-01, 00006600
           .267831483015E-03,    .131915034009E-03,  -.970274201717E-05, 00006610
      6,   .703492985692E+00,   -.483430857792E+00,   .170065626290E-01, 00006620
           .163806170431E-01,   -.331416045311E-02,   .665799831205E-02, 00006630
           .125901201654E+00,    .152475016026E+00,   .131345080149E+00, 00006640
           .991938288683E-02,    .887601135778E-02,  -.161174530347E-03, 00006650
      6,   .256793145431E+00,   -.289873945952E+00,   .729618915462E-01, 00006660
           .779754470474E-02,    .577159592699E-01,  -.219730671041E-01, 00006670
           .428355517544E+00,    .365634468912E+00,   .121452385683E+00, 00006680
           .186177926521E-01,    .312719474229E-02,  -.205637319881E-01  00006690
CRV220   = CURVE  /       1,                                          00006700
           .0000000000000E+00,   .100000000000E+01,                   00006710
      2,  -.393178901415E+01,   -.577315972805E-14,   .114379284932E-02, 00006720
          -.248805330546E+02,    .000000000000E+00,   .000000000000E+00  00006730
XRV2201  = CONS   / SUR00002,CRV220  ,                                00006740
           .0000000000000E+00,   .100000000000E+01,                   00006750
      1,   .0000000000000E+00,   .100000000000E+01,                   00006760
      2,   .916666666666E+00,   -.222044604925E-15,   .916666666667E+00, 00006770
          -.833333333333E+00                                         00006780
FAC33    = FACE   / SUR00002,        1,                              00006790
      3,             XRV2181 ,    .100000000000E+01,   .000000000000E+00, 00006800
                     XRV2191 ,    .300000000000E+01,   .000000000000E+00, 00006810
                     XRV2201 ,    .100000000000E+01,   .000000000000E+00  00006820
$$ VDAFS-NAME "SUR00003" WURDE ERZEUGT FUER DAS CATIA-ELEMENT           00006830
$$ "CATIA-ELEMENT OHNE NAMEN"                                          00006840
SUR00003 = SURF   /       1,         1,                               00006850
           .0000000000000E+00,   .100000000000E+01,   .000000000000E+00, 00006860
           .1000000000000E+01,                                        00006870
  2,  2,  -.393178618028E+01,   -.648150750981E-05,  -.566346231334E-05, 00006880
           .0000000000000E+00,   .248919709831E+01,   .000000000000E+00, 00006890
          -.298566396655E+02,    .000000000000E+00,  -.187658972357E+01, 00006900
           .225190766829E+02,   -.163002944475E-11,   .000000000000E+00  00006910
CRV221   = CURVE  /       1,                                          00006920
           .0000000000000E+00,   .100000000000E+01,                   00006930
      2,  -.393179259362E+01,    .540126089284E-05,   .111935800153E-02, 00006940
           .244348429823E-04,    .187658972357E+02,  -.187658972341E+02  00006950
XRV2211  = CONS   / SUR00003,CRV221  ,                                00006960
           .0000000000000E+00,   .100000000000E+01,                   00006970
      1,   .0000000000000E+00,   .100000000000E+01,                   00006980
      2,   .916666666666E+00,   -.833333333259E+00,   .833341517392E-01, 00006990
          -.818405663058E-06                                         00007000
CRV222   = CURVE  /       1,                                          00007010
           .0000000000000E+00,   .100000000000E+01,                   00007020
      2,  -.393179613748E+01,    .354364347860E-05,  -.186813803498E+02, 00007030
           .186813790914E+02,    .187658972357E+02,  -.103733601005E-27  00007040
XRV2221  = CONS   / SUR00003,CRV222  ,                                00007050
           .0000000000000E+00,   .100000000000E+01,                   00007060
      1,   .0000000000000E+00,   .100000000000E+01,                   00007070
      2,   .916666666667E+00,   -.451860771022E-13,   .709074352817E+00, 00007080
          -.625702667840E+00                                         00007090
CRV223   = CURVE  /       1,                                          00007100
           .0000000000000E+00,   .100000000000E+01,                   00007110
      6,  -.393179576090E+01,   -.199958100155E-05,   .114315154218E-05, 00007120
           .770336224447E-06,   -.257709730691E-06,  -.326210779336E-07, 00007130
          -.236350011718E+02,    .648953743824E+00,   .534000647224E+01, 00007140
          -.413042089152E-02,   -.124057427100E+01,   .209361470530E+00, 00007150
           .141928479891E+02,    .737495028808E+01,  -.452408383530E+00, 00007160
          -.267914586743E+01,    .777804899476E-01,   .251316110531E+00  00007170
XRV2231  = CONS   / SUR00003,CRV223  ,                                00007180
           .0000000000000E+00,   .100000000000E+01,                   00007190
      1,   .0000000000000E+00,   .100000000000E+01,                   00007200
      6,   .713592210684E+00,    .327497898423E+00,  -.200900059048E-01, 00007210
          -.118972278711E+00,    .345398219665E-02,   .111601427567E-01, 00007220
           .874987894243E+00,   -.217356591731E-01,  -.178854905712E+00, 00007230
           .138341787215E-03,    .415510347079E-01,  -.701222484767E-02  00007240
CRV224   = CURVE  /       1,                                          00007250
           .0000000000000E+00,   .100000000000E+01,                   00007260
      2,  -.393179191192E+01,   -.384898100210E-05,  -.248793892617E+02, 00007270
           .124447485934E+01,   -.103935733843E-10,   .141929034794E+02  00007280
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XRV2241  = CONS   / SUR00003,CRV224  ,                                    00007290
           .0000000000000E+00,   .100000000000E+01,                       00007300
      1,   .0000000000000E+00,   .100000000000E+01,                       00007310
      2,   .833333333335E-01,   .630261341494E+00,   .916666666667E+00, 00007320
         -.416816786244E-01                                               00007330
CRV225   = CURVE  /       1,                                              00007340
           .0000000000000E+00,   .100000000000E+01,                       00007350
      2,  -.393178719236E+01,  -.471955192721E-05,   .114379284932E-02, 00007360
         -.248805330546E+02,   .167318723575E-08,  -.167318759892E-08  00007370
XRV2251  = CONS   / SUR00003,CRV225  ,                                    00007380
           .0000000000000E+00,   .100000000000E+01,                       00007390
      1,   .0000000000000E+00,   .100000000000E+01,                       00007400
      2,   .833333334076E-01,  -.742405720233E-10,   .833333333333E-01, 00007410
           .833333333333E+00                                              00007420
FAC34    = FACE   / SUR00003,       1,                                    00007430
      5,            XRV2211 ,   .100000000000E+01,   .000000000000E+00, 00007440
                    XRV2221 ,   .100000000000E+01,   .000000000000E+00, 00007450
                    XRV2231 ,   .100000000000E+01,   .000000000000E+00, 00007460
                    XRV2241 ,   .100000000000E+01,   .000000000000E+00, 00007470
                    XRV2251 ,   .100000000000E+01,   .000000000000E+00  00007480
VOL3     = TOP    /       12,                                             00007490
               FAC32   , 1, XRV2131 ,  .00000000E+00,  .10000000E+01,    00007500
               FAC27   , 1, XRV2021 ,  .00000000E+00,  .10000000E+01, 0, 00007510
               FAC32   , 1, XRV2141 ,  .00000000E+00,  .10000000E+01,    00007520
               FAC34   , 1, XRV2211 ,  .00000000E+00,  .10000000E+01, 0, 00007530
               FAC32   , 1, XRV2151 ,  .00000000E+00,  .10000000E+01,    00007540
               FAC33   , 1, XRV2181 ,  .00000000E+00,  .10000000E+01, 0, 00007550
               FAC32   , 1, XRV2161 ,  .00000000E+00,  .10000000E+01,    00007560
               FAC29   , 1, XRV2061 ,  .00000000E+00,  .10000000E+01, 0, 00007570
               FAC32   , 1, XRV2171 ,  .00000000E+00,  .10000000E+01,    00007580
               FAC30   , 1, XRV2101 ,  .00000000E+00,  .10000000E+01, 0, 00007590
               FAC33   , 1, XRV2191 ,  .00000000E+00,  .30000000E+01,    00007600
               FAC29   , 1, XRV2051 ,  .00000000E+00,  .30000000E+01, 0, 00007610
               FAC33   , 1, XRV2201 ,  .00000000E+00,  .10000000E+01,    00007620
               FAC34   , 1, XRV2251 ,  .00000000E+00,  .10000000E+01, 0, 00007630
               FAC34   , 1, XRV2221 ,  .00000000E+00,  .10000000E+01,    00007640
               FAC27   , 1, XRV2041 ,  .00000000E+00,  .10000000E+01, 0, 00007650
               FAC34   , 1, XRV2231 ,  .00000000E+00,  .10000000E+01,    00007660
               FAC30   , 1, XRV2121 ,  .00000000E+00,  .10000000E+01, 0, 00007670
               FAC34   , 1, XRV2241 ,  .00000000E+00,  .10000000E+01,    00007680
               FAC29   , 1, XRV2081 ,  .00000000E+00,  .10000000E+01, 0, 00007690
               FAC27   , 1, XRV2031 ,  .00000000E+00,  .40000000E+01,    00007700
               FAC30   , 1, XRV2091 ,  .00000000E+00,  .30000000E+01, 0, 00007710
               FAC29   , 1, XRV2071 ,  .00000000E+00,  .40000000E+01,    00007720
               FAC30   , 1, XRV2111 ,  .00000000E+00,  .30000000E+01, 0  00007730
SET1     = ENDSET                                                         00007740
LAYER000 = GROUP  /       34,                                             00007750
        FAC32   , XRV2131 , XRV2141 , FAC27   , XRV2021 ,                 00007760
        XRV2031 , XRV2041 , FAC29   , XRV2051 , XRV2061 ,                 00007770
        XRV2071 , XRV2081 , FAC30   , XRV2091 , XRV2101 ,                 00007780
        XRV2111 , XRV2121 , SUR00001, VOL3    , XRV2201 ,                 00007790
        SUR00003, XRV2151 , XRV2161 , XRV2171 , SUR00002,                 00007800
        FAC33   , XRV2181 , XRV2191 , XRV2221 , XRV2231 ,                 00007810
        FAC34   , XRV2211 , XRV2241 , XRV2251                             00007820
LAYER001 = GROUP  /        3,                                             00007830
        SUR19   , SUR22   , SUR15                                         00007840
TCVDAFS = END                                                             00007850
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