

Flow Rate Results (Fluid Flow)

The fluid flow flow rate results (.Sfrate and .Ufrate) are the volumetric flow rates through each face of each element. The file consists of three sections:

1. the main header
2. the part headers (one for each part)
3. the results

Main Header:

The main header appears once in the results file and has the following format:

Variable	Type	Description
TimeStepCount	4-byte integer	The number of time steps in the results file.
Reserved(1)	4-byte integer	Reserved for future development. The value 1.
Reserved(2)	4-byte integer	Reserved for future development.
NumParts	4-byte integer	The total number of parts in the model.
Version	8-byte real	The version number of the results file. This documentation is for Version = 1.0.
NDYN	4-byte integer	The analysis code
Reserved(3)	4-byte integer	Reserved for future development.
PartHeaderSize	4-byte integer	The length of each part header (in bytes).
Reserved(4) through Reserved(6)	4-byte integer	Three values reserved for future development. This creates a "buffer" so that the length of the header can remain fixed.

Total length of Main Header = 48 bytes. [Constant in all models]

Part Headers:

After the main header, each part in the analysis has a header. The format of each part header is as follows:

Variable	Type	Description
ElemType	4-byte integer	A number representing the element type.
NumElem	4-byte integer	The number of elements in the part.
NumResults	4-byte integer	The number of results given for each element.
LenResult	4-byte integer	The number of bytes of each result.

Total length of all part headers = NumParts x PartHeaderSize bytes

Results:

The data in the results is ordered as follows:

Time Step #

Part #

Element #

Result 1 through result "NumResults" (see table below)

next Element #
Next Part #
Next Time Step #

The result at each location is as follows. Note that the time step number, part number, and element number are not given in the results file. Those numbers are implied based on the position (byte) of the result.

Variable	Type	Description
FlowRate (i)	4-byte real	The volumetric flow rate through face i. Positive values are flow into the element; negative values are flow out of the element.
