# Simulink Report: Duct_

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# Kapitel 1. Model - Duct_

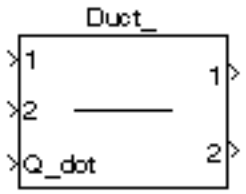


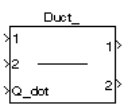

**Tabelle 1.1. Duct_ Simulation Parameters**

| | | |
|---|---|---|
| *Solver* ode14x | *ZeroCross* on | *StartTime* 0.0*StopTime* 10.0 |
| *RelTol* 1e-3 | *AbsTol* auto | *Refine* 1 |
| *InitialStep* auto | *FixedStep* auto | *MaxStep* auto |

**Tabelle 1.2. Duct_ Summary Information**

| | | | |
|---|---|---|---|
| *NumModelInputs* | N/A | *NumModelOutputs* | N/A |
| *NumVirtualSubsystems* | N/A | *NumNonvirtSubsystems* | N/A |
| *NumNonVirtBlocksInModel* | N/A | *NumBlockTypeCounts* | N/A |
| *NumBlockSignals* | N/A | *NumBlockParams* | N/A |
| *NumZCEvents* | N/A | *NumNonsampledZCs* | N/A |

# Systems

| Name | Parent | Snapshot | Blocks | Signals |
|---|---|---|---|---|
| Duct_ | <root> |  | Duct_ | Duct_<1><br>Duct_<2> |

# Blocks

**Tabelle 1.3. Block Type Count**

| BlockType | Count | Block Names |
|---|---|---|
| Inport | 75 | In_1, In_2, Q_dot, L, D, In_1, In_2, L, D, L, zeta, mode, p_in_1, rho_in_1, T_in_1, x_H2O_gas_in_1, x_CO2_in_1, x_H2O_liq_in_1, p_in_2, rho_in_2, T_in_2, x_H2O_gas_in_2, x_CO2_in_2, x_H2O_liq_in_2, In_1, In_2, L, D, L, zeta, mode, p_in_1, rho_in_1, T_in_1, x_H2O_gas_in_1, x_CO2_in_1, x_H2O_liq_in_1, p_in_2, rho_in_2, T_in_2, x_H2O_gas_in_2, x_CO2_in_2, x_H2O_liq_in_2, In_1, In_2, Q_dot, V, V, p_init, T_init, |

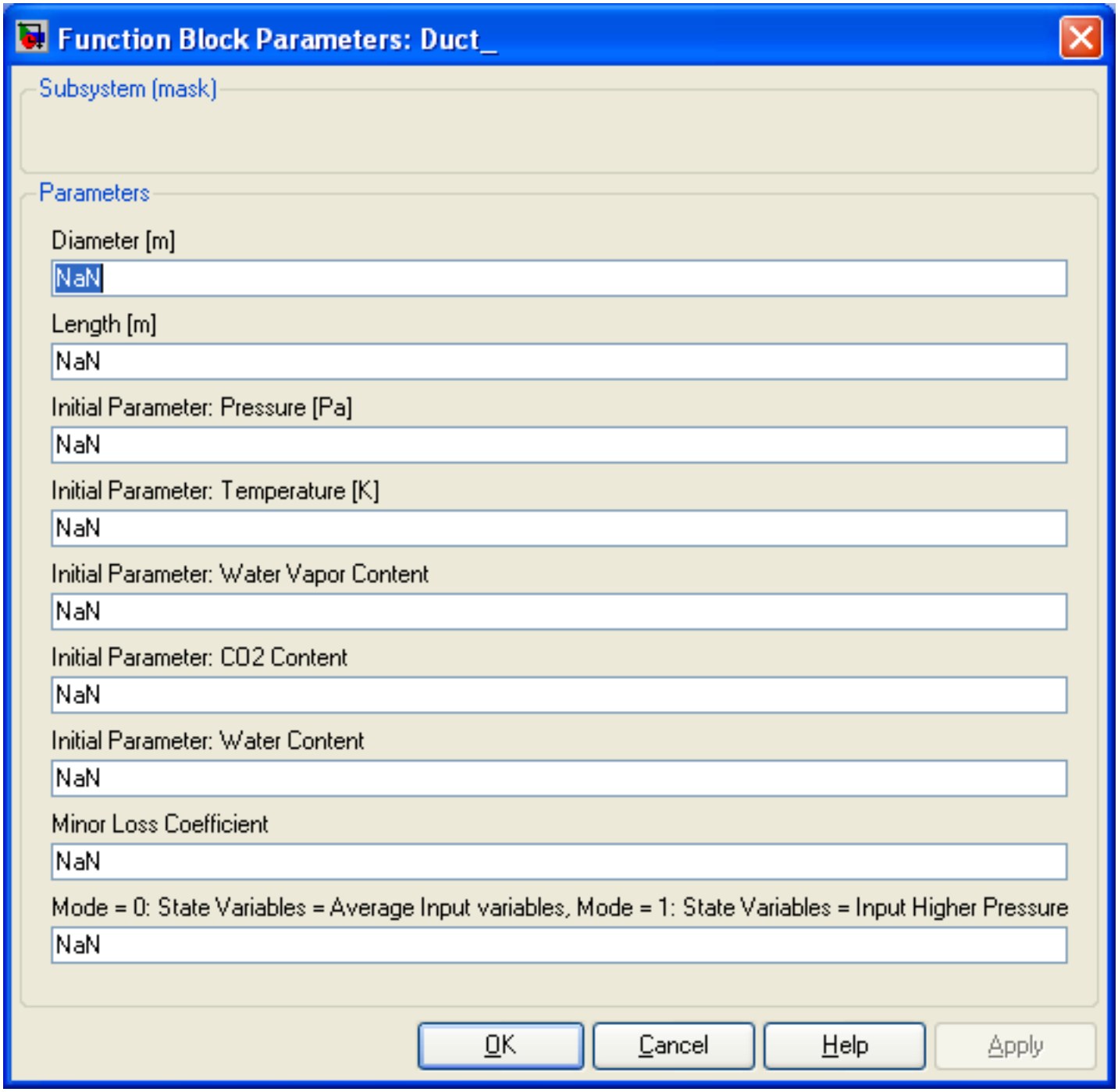
| BlockType | Count | Block Names |
|---|---|---|
| | | x_H2O_gas_init, x_CO2_init, x_H2O_liq_init, T, m_air, m_H2O_gas, m_CO2, m_H2O_liq, T_in_1, m_dot_air_in_1, x_H2O_gas_in_1, x_CO2_in_1, x_H2O_liq_in_1, T_in_2, m_dot_air_in_2, x_H2O_gas_in_2, x_CO2_in_2, x_H2O_liq_in_2, Q_dot, T, m_air, m_H2O_gas, m_CO2, m_H2O_liq, V |
| Outport | 40 | V, rho, T, x_H2O_gas, x_CO2, x_H2O_liq, p_1, m_dot_air_1, p_2, m_dot_air_2, Out_1, Out_2, rho, T, x_H2O_gas, x_CO2, x_H2O_liq, p_1, m_dot_air_1, p_2, m_dot_air_2, Out_1, Out_2, m_air_init, m_H2O_gas_init, m_CO2_init, m_H2O_liq_init, T_dot, m_dot_air, m_dot_H2O_gas, m_dot_CO2, m_dot_H2O_liq, p, rho, x_H2O_gas, x_CO2, x_H2O_liq, Out, Out_1, Out_2 |
| Constant | 16 | D, D, m_air, mode, zeta, D, m_air, mode, zeta, L, T_init, m_dot_air, p_init, x_CO2_init, x_H2O_gas_init, x_H2O_liq_init |
| Terminator | 6 | Terminator , Terminator , Terminator , Terminator , Terminator , Terminator |
| Stateflow (m) | 6 | Embedded MATLAB Function, Embedded MATLA Function, Embedded MATLA Function, Embedded MATLAB Function, Embedded_MATLAB_Function_1, Embedded_MATLAB_Function_2 |
| S-Function | 6 | SFunction , SFunction , SFunction , SFunction , SFunction , SFunction |
| Demux | 6 | Demux , Demux , Demux , Demux , Demux , Demux |
| BusSelector | 6 | Bus Selector3, Bus Selector4, Bus Selector3, Bus Selector4, Bus Selector2, Bus Selector5 |
| Integrator | 5 | Integrator1, Integrator2, Integrator3, Integrator4, Integrator5 |
| BusCreator | 5 | Bus Creator1, Bus Creator2, Bus Creator1, Bus Creator2, Bus Creator1 |
| SubSystem | 4 | Duct_, FR_1, FR_2, Vol_2D |
| Fcn | 1 | Fcn |

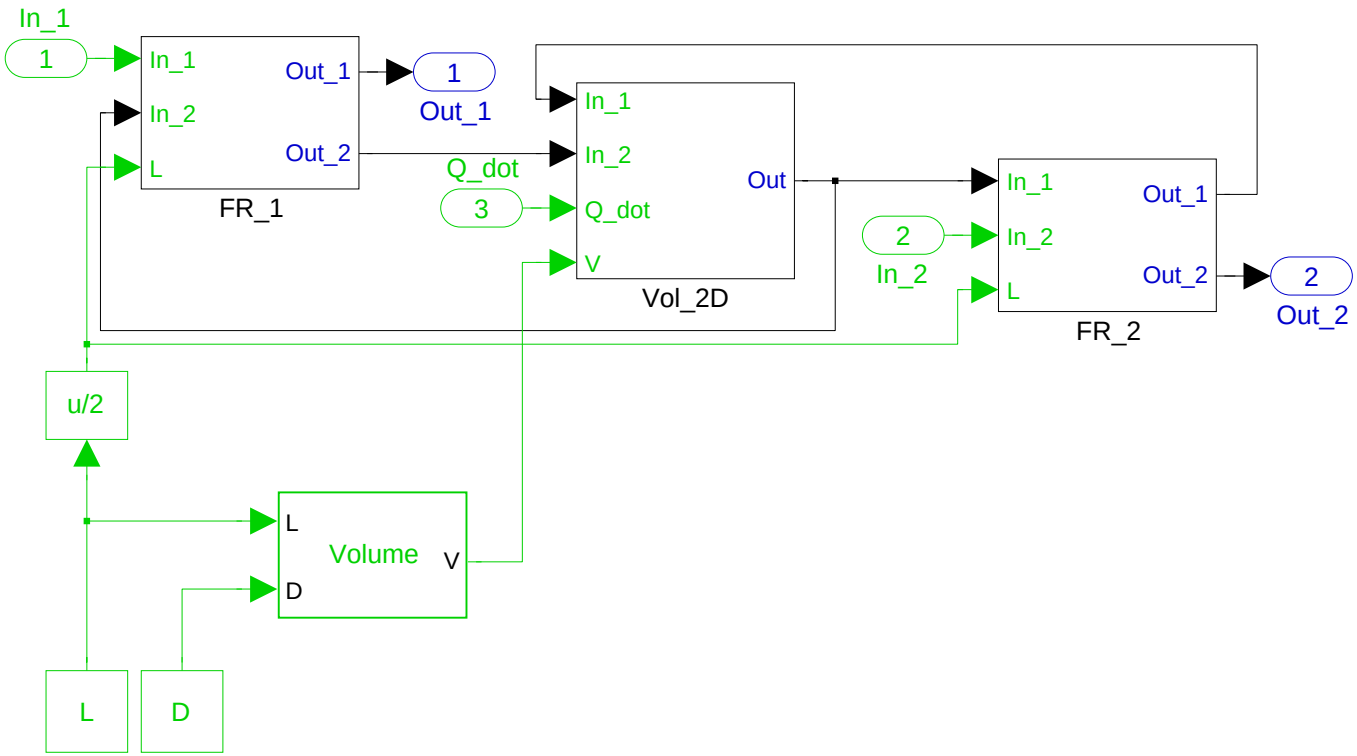
# Data and Functions

**Tabelle 1.4. Model Functions**

| Function Name | Parent Blocks | Calling string |
|---|---|---|
| NaN | | |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |
| | Duct_ | `NaN` |

| Function Name | Parent Blocks | Calling string |
|---|---|---|
| | Duct_ | NaN |


Function Block Parameters: Duct_
Subsystem (mask)
Parameters
Diameter [m]
NaN
Length [m]
NaN
Initial Parameter: Pressure [Pa]
NaN
Initial Parameter: Temperature [K]
NaN
Initial Parameter: Water Vapor Content
NaN
Initial Parameter: CO2 Content
NaN
Initial Parameter: Water Content
NaN
Minor Loss Coefficient
NaN
Mode = 0: State Variables = Average Input variables, Mode = 1: State Variables = Input Higher Pressure
NaN
OK
Cancel
Help
Apply


In_1
1
In_1
In_2
L
Out_1
Out_2
FR_1
1
Out_1
Q_dot
3
In_1
In_2
Q_dot
V
Out
Vol_2D
2
In_2
In_1
In_2
L
Out_1
Out_2
FR_2
2
Out_2
u/2
L
D
Volume
V
L
D