

DIN EN 15544:2023-04 (E)

One off Kachelgrundöfen / Putzgrundöfen (tiled / mortared stoves) - Dimensioning

Contents		Page
European foreword		3
Introduction		4
1	Scope	5
2	Normative references	6
3	Terms and definitions	6
4	Calculations	8
4.1	Nominal heat output	8
4.2	Load of fuel	9
4.2.1	Maximum load	9
4.2.2	Minimum load	9
4.3	Design of the essential dimensions	9
4.3.1	Combustion chamber dimensions	9
4.3.2	Calculated flue pipe length	11
4.3.3	Minimum flue pipe length	11
4.3.4	Gas slot profile	13
4.4	Calculation of the burning rate	14
4.5	Fixing of the air ratio	14
4.6	Combustion air flue gas	14
4.6.1	General	14
4.6.2	Combustion air flow rate	14
4.6.3	Flue gas flow rate	15
4.6.4	Flue gas mass flow rate	16
4.7	Calculations of the density	16
4.7.1	Combustion air density	16
4.7.2	Flue gas density	16
4.8	Calculation of the outside air temperature combustion air temperature and flue gas temperature	17
4.8.1	Mean outside air temperature and combustion air temperature	17
4.8.2	Mean combustion chamber temperature	17
4.8.3	Flue gas temperature in the flue pipe	17
4.8.4	Flue gas temperature in the connecting pipe	18
4.8.5	Flue gas temperature at chimney entrance mean flue gas temperature of the chimney and temperature of the chimney wall at the top of the chimney	18
4.9	Calculation of flow mechanics	18
4.9.1	General	18
4.9.2	Calculation of the standing pressure	18
4.9.3	Calculation of the flow velocity	19
4.9.4	Calculation of the static friction	19
4.9.5	Calculation of the resistance due to direction change	21
4.10	Operation control	22
4.10.1	Pressure condition	22
4.10.2	Dew point condition	22
4.10.3	Energy efficiency	23
4.10.4	Flue gas triple of variates	23
Bibliography		24