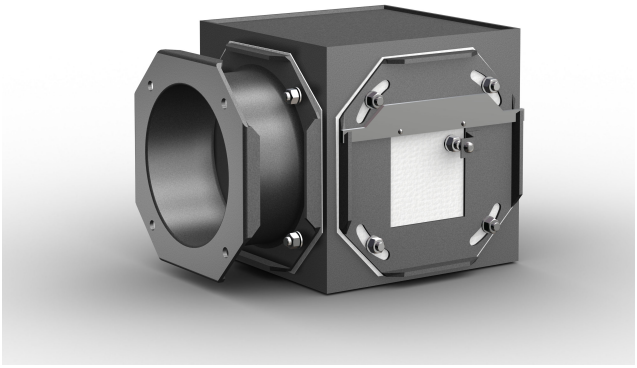
CHIMNEY DRAUGHT REGULATOR



The chimney is a upwards construction whose ventilation pipe is for exhaust of combustion gas products from the furnace into atmosphere. It must satisfy ČSN 734201 - Chimney and smoke flues designing and ČSN 734210 - Chimney and smoke flues implementation and connection of the fuel appliances.

The target of the chimney ventilation pipe is to make at heat combustion gas outlet the required underpressure- DRAUGHT that assures the outlet of the combustion gas from the connected outlet neck of the furnace with the sufficient reserve to get over all draught loss. At overpressured furnaces the DRAUGHT must in addition get over the pressure loss in the furnace (from combustion gas inlet into the furnace- up to flue gas neck).

The effective chimney draught depends on its height, barometric pressure, temperature and speed of outside air flow, average temperature of the flowing combustion gas through the ventilation pipe (it has connection with the grade of the chimney heat up and its heat-insulated properties same as the kind of the furnace and the regulation rate of its output), cross section of the chimney vent pipe and the quality of its internal areas.

Based on the mentioned above it is obvious that **the most of the factors implicating the effective draught is variable in a time**, so even the chimney draught during operation cannot be constant. However, it is in contradiction with the need of continual pressure rates in the furnace that is necessary for its right set up in terms of environment and economy.

Chimney draught regulator
is a flange construction having seats for swinging edge of a regulator valve and a holder for magnetic toroid. The original principle of the soft adjustment of the permanent magnet draught on the regulator valve is the object of the company VERNER patent. The screw adjusting of the magnet distance from the regulator valve provides to set the necessary magnetic preload that definies underpressure threshold value. If the higher underpressure than magnetic preload of the magnet occures in the valve, the valve is half-closed so the volume of the sucking air assured the required underpressure in the chimney vent pipe.
The described regulator has a maximum operative area of 95 cm^2 and has a type designation RTK-95. The steady draught is provided by that and the optimal conditions for the burning in the furnace are made (the chimney draught doesn´t influence the boiler combustion). The result is the fuel annual saving of 3 to 9%!

The installation of a chimney draught regulator brings a lot of advantages and improvements, such as:

- It solves the problems not only with the chimney draught irregularity and subsequent furnace setting up, however even with the moistening of the chimney´s constructions
- It adapts the properties of the original chimney to the operation of the new furnace so that the original chimney usually too big and badly thermal insulated can work on without expensive renovations

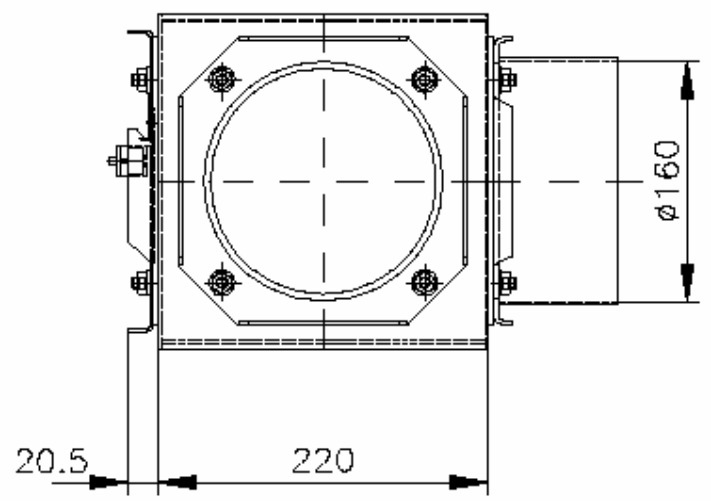
- At an excessive chimney draught due to the air suction from the boiler room it dilutes the combustion gas, increases their volume and the speed of the flow in the ventilation pipe. It results in lower cooling and increase of the protection againts water condensation. The combustion gas temperature drop due to the mixing with air is compensated by the decrease of the dew point of the incurred mixture.
- It sucks in the air at the operation breaks of the furnace when the warmed up chimney makes a sufficient draught. The air is pre-heated in the the bottom part of the ventilation pipe and it dries out and ventilates the chimney in the top parts then. That way the good chimney condition is assured independetly on the way of the furnace operation even in such cases of getting the chimney wet and followed up damage.

The advisable temperature of the sucking in air is at least 15°C and the relative humidity max. 60% what is not a problem in the boiler rooms.

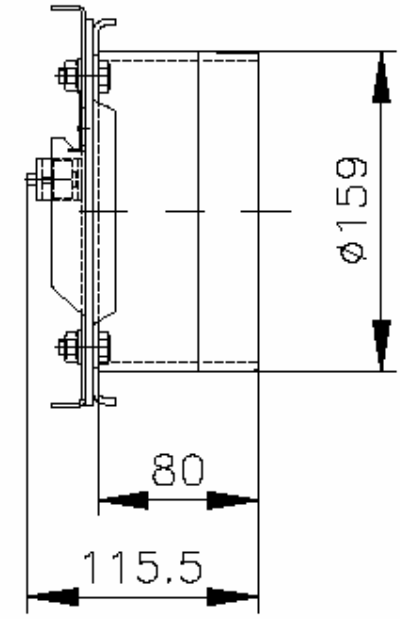
The conditions for the chimney draught regulator installation:

- Installation must be provided only in the area of furnace installation
- Cleaning and test of the smoke flue connecting parts cannot be limited
- It cannot be broken the perfect combustion gas outlet from furnace
- Set up directly on the chimney must be provided min. 40 cm above the ventilation pipe bottom
- In case of shared chimney ventilation pipe for the furnaces situated in the different places the regulator installation is not admissible (not the same pressure rates)
- The other appliance that would change the pressure rates cannot be operated in the place of regulator installation (f.e. airconditioning)
- Any combustible materials cannot be situated in the protective fire area in the surrounding of the regulator
- It is recommended to consult the regulator installation with the chimney company

CASE MODEL



SHRINK RING MODEL



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