

Series
NK



Duct electric heater



Duct electric heater with temperature controller

Series
NK...U



Duct electric heater with a control unit

■ **Applications**

Duct electric heaters are designed for supply air heating in round duct ventilating systems. The heaters are applied in heating, ventilation and air conditioning systems for various premises.

■ **Design**

The casing and the terminal box are made of galvanized steel and the heating elements are of stainless steel. The heaters are equipped with rubber seals for connection to the air ducts.

NK duct heaters are equipped with two overheating protection thermostats:

- ▶ basic protection with automatic restart with +50 °C operating temperature. After cooling the thermostat closes the control circuit of the heater automatically.
- ▶ emergency protection with manual restart (operating temperature +90 °C). In case of response the power supply to the heater is allowed after the manual emergency reset only.
- ▶ the thermostat contacts are located in the terminal box for external connection.

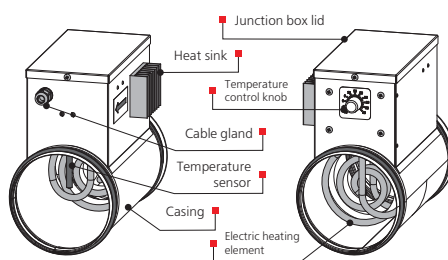
Each standard size has several electric capacity options. The higher capacity can be attained by means of

installation of the heaters in series. All the three phase heaters have star connection.

■ **Duct electric heater with integrated temperature control**

The NK heaters are available in modifications NK...U with a temperature controller for the heaters with power demand from 0.6 up to 2.4 kW or with a control unit for the heaters with power demand from 3.0 up to 9.0 kW to maintain set air temperature in the air duct.

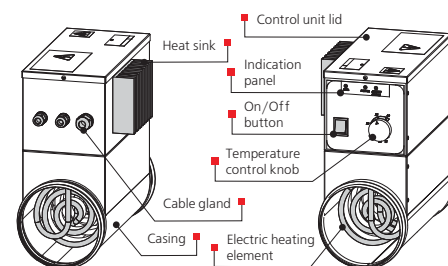
▶ **NK...U duct heater with a temperature controller, power demand from 0.6 up to 2.4 kW**



The temperature control knob with temperature range from -10 °C up to +40 °C is placed on the junction box front panel. The NK...U heater is equipped with a built-in temperature sensor located inside of the air duct.

The thermal switch with manual reset actuated at +60 °C is used for the thermal overheat protection.

▶ **NK...U duct heater with a control unit, power demand from 3.0 up to 9.0 kW**



The NK...U model with a control unit is equipped with a triac power control unit. Power control is effected by means of switching on/off the maximum load commutated by the semiconductor device that is free of any mechanical wear parts. The load commutation starts at zero current and load to disable any magnetic field interferences.

The NK...U heater includes two overheat protection thermostats:

- ✓ the basic self-resetting overheat protection thermostat actuated at the temperature +50 °C.

Designation key:

Series	Air duct diameter, mm	Heater power [kW]	Phase	Options
NK	100; 125; 150; 160; 200; 250; 315	0,6; 0,8; 1,2; 1,6; 1,7; 2,0; 1,8; 2,4; 3,0; 3,4; 3,6; 5,1; 6,0; 9,0	1 – single phase 3 – three phase	U – integrated temperature control

Accessories



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After cooling the thermostat closes the heater control circuit.

- ✓ the emergency overheat protection thermostat with manual reset actuated at the temperature +90 °C. In case of the thermostat tripping power supply is resumed after manual alarm reset.

Operation logic options for the NK...U heater with a control unit:

- ✓ operation logic based on temperature sensor readings to maintain set air temperature in the air duct.
- ✓ proportional electric heat control from 0 up to 100% with a 0-10 V control signal from the external controller.

The temperature is set with the integrated potentiometer. Optionally, an external 0-10 V control signal from another control unit may be connected to the control unit, which corresponds to the temperature 0 up to +40 °C.

Offered temperature sensor options for the NK...U heater operation logic based on temperature sensor readings (not included into delivery set):

- ✓ KDT2-M1 duct temperature sensor enclosed in a protecting sleeve with a sensing tip, 100 up to 400 mm long
- ✓ KDT2-M duct temperature sensor enclosed in a protecting sleeve with a mounting flange, 100 up to 400 mm long
- ✓ KDT2-MK duct temperature sensor enclosed in a protecting sleeve with a mounting flange, 100 up to 400 mm long

■ Mounting

The heater design ensures its mounting on the round ducts in any position by means of clamps. The air flow direction shall match the pointer on the filter. The duct heaters can be installed in any position except for with the electric control unit below to prevent liquid penetration and wiring short circuit.

- ▶ The mounting shall be performed in such a way as to enable uniform air distribution along the entire cross section.
- ▶ The air filter shall be installed at heater inlet to protect the heating elements against pollution.

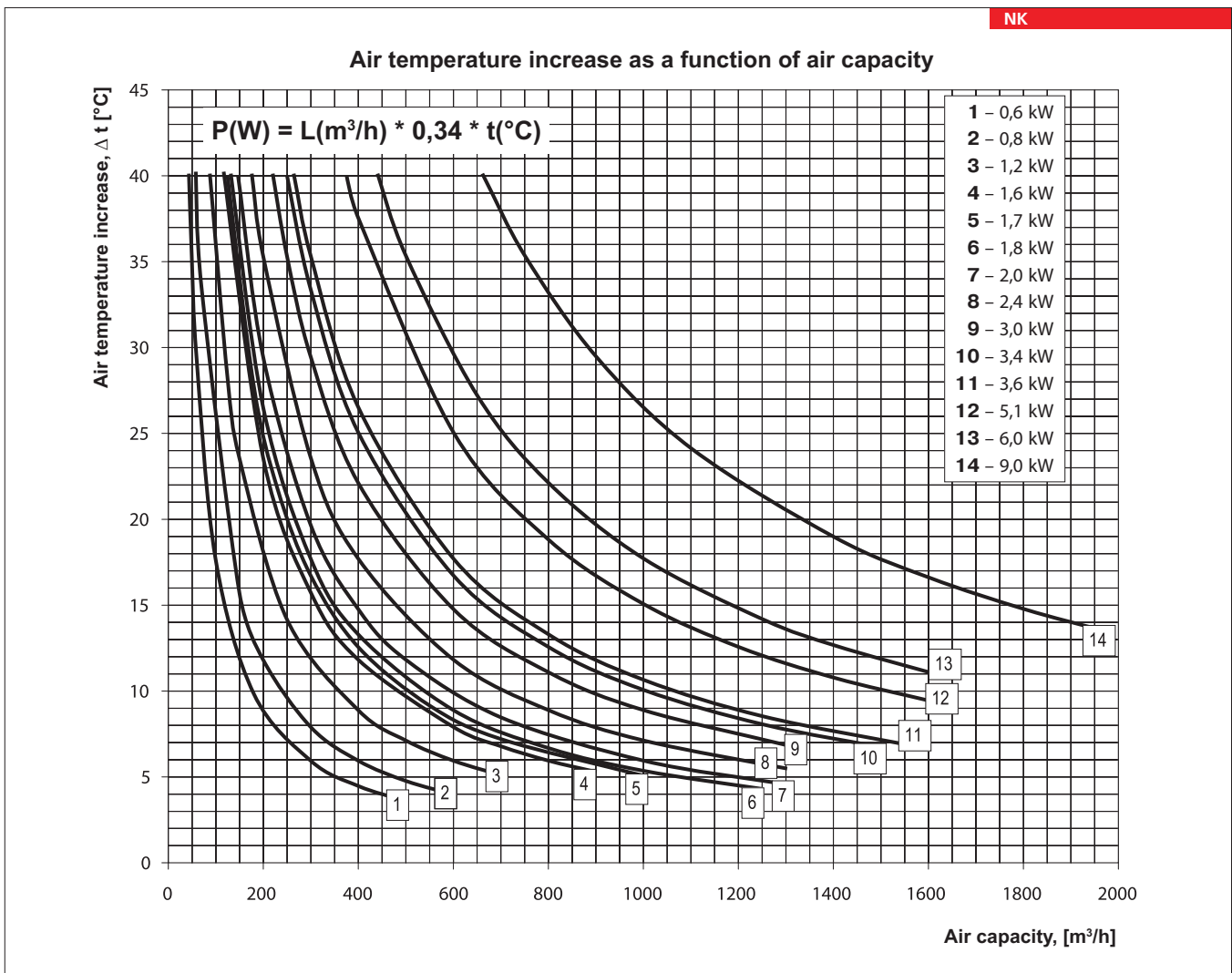
▶ The minimum distance between the heater and other system elements is no less than two connecting diameters.

▶ The duct heaters are designed for minimum air flow speed 1.5 m/s and the maximum operating outlet temperature 40 °C. In case of speed control option ensure the minimum air flow through the heater.

▶ Power supply to the heater shall be disabled if the fan is not running.

▶ To ensure the correct and safe heater operation the automation system can be applied to ensure the complex control and protection:

- ✓ automatic control of heating elements capacity and air heating temperature;
- ✓ checking filter condition by means of differential pressure sensor;
- ✓ power supply disabling in case of supply fan shutdown or airflow speed decrease as well as in case of the built-in overheating thermostats operation;
- ✓ shutoff of ventilating system with blowing of electrical heating elements.

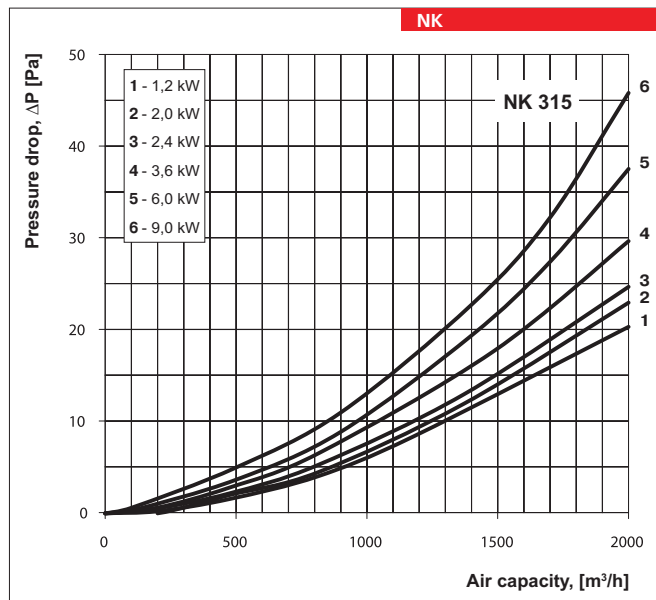
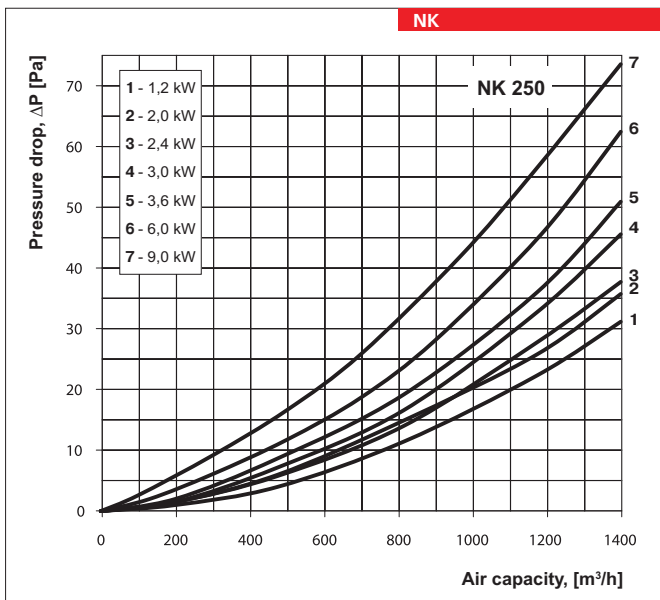
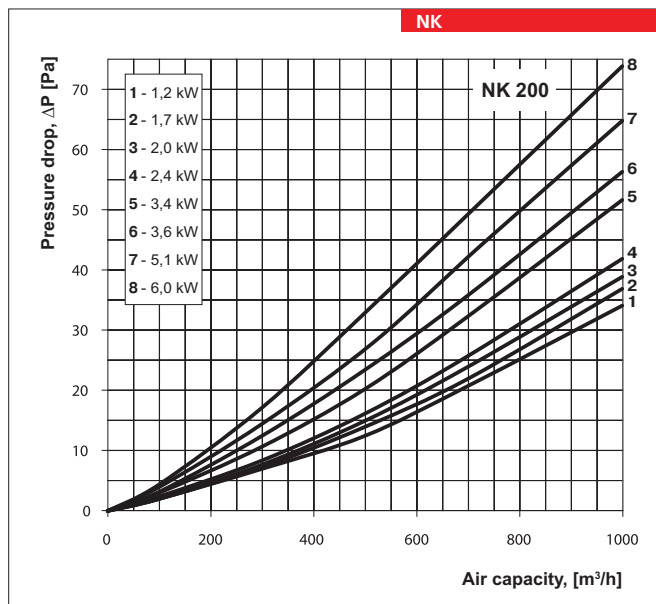
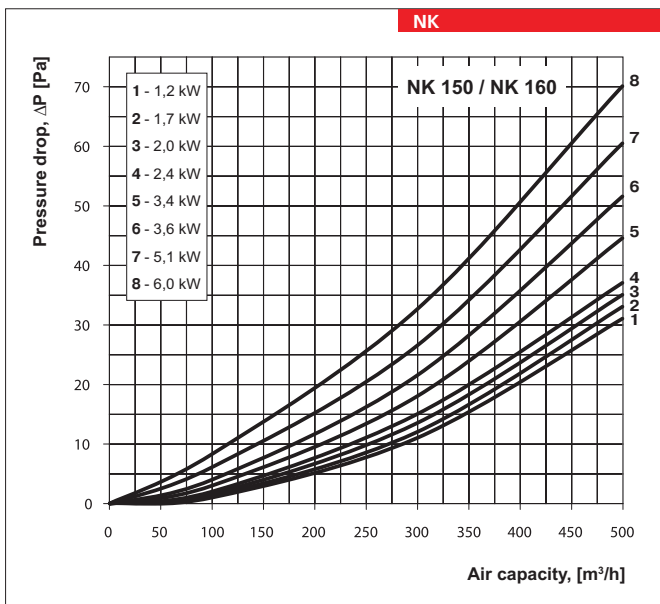
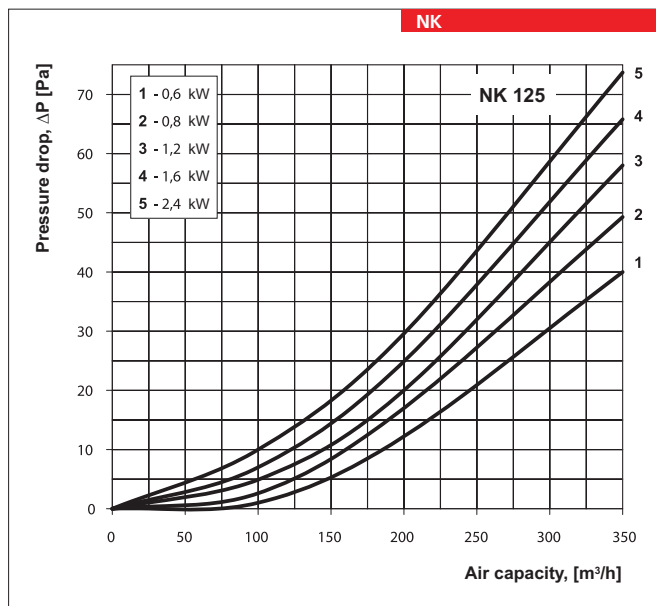
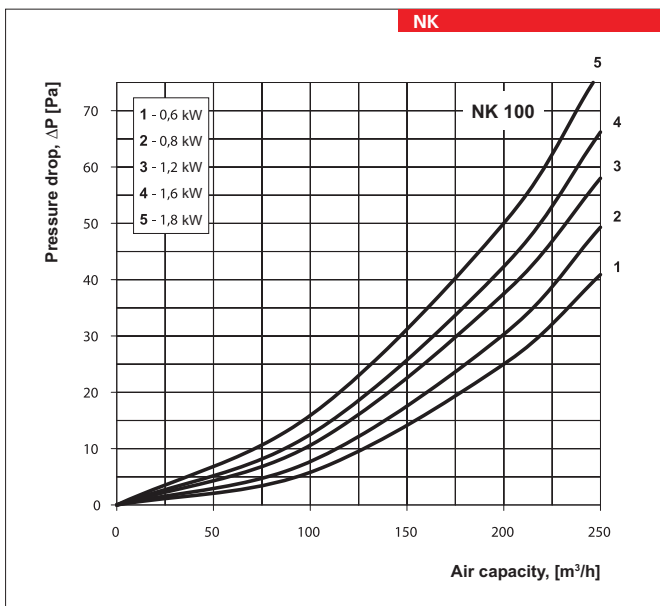


NK HEATER NK...U

HEATERS

Technical data:

Type	Minimum air capacity [m³/h]	Current [A]	Voltage [V]	Power [kW]	Number of heating coils x capacity [kW]	Phase		
NK 100-0,6-1 / NK 100-0,6-1 U	60	2.6	1~230	0.6	1 x 0.6	1		
NK 100-0,8-1 / NK 100-0,8-1 U	80	3.5		0.8	1 x 0.8	1		
NK 100-1,2-1 / NK 100-1,2-1 U	90	5.2		1.2	2 x 0.6	1		
NK 100-1,6-1 / NK 100-1,6-1 U	120	7.0		1.6	2 x 0.8	1		
NK 100-1,8-1 / NK 100-1,8-1 U	130	7.8		1.8	3 x 0.6	1		
NK 125-0,6-1 / NK 125-0,6-1 U	60	2.6		0.6	1 x 0.6	1		
NK 125-0,8-1 / NK 125-0,8-1 U	80	3.5		0.8	1 x 0.8	1		
NK 125-1,2-1 / NK 125-1,2-1 U	90	5.2		1.2	2 x 0.6	1		
NK 125-1,6-1 / NK 125-1,6-1 U	120	7.0		1.6	2 x 0.8	1		
NK 125-2,4-1 / NK 125-2,4-1 U	150	7.8		2.4	3 x 0.8	1		
NK 150-1,2-1 / NK 150-1,2-1 U	120	5.2		1.2	1 x 1.2	1		
NK 150-1,7-1 / NK 150-1,7-1 U	130	7.4		1.7	1 x 1.7	1		
NK 150-2,0-1 / NK 150-2,0-1 U	140	8.7	2.0	1 x 2.0	1			
NK 150-2,4-1 / NK 150-2,4-1 U	150	10.4	2.4	2 x 1.2	1			
NK 150-3,4-1 / NK 150-3,4-1 U	220	14.7	3.4	2 x 1.7	1			
NK 150-3,6-3 / NK 150-3,6-3 U	265	5.2	3~400	3.6	3 x 1.2	3		
NK 150-5,1-3 / NK 150-5,1-3 U	320	7.4		5.1	3 x 1.7	3		
NK 150-6,0-3 / NK 150-6,0-3 U	360	8.7		6.0	3 x 2.0	3		
NK 160-1,2-1 / NK 160-1,2-1 U	150	5.2	1~230	1.2	1 x 1.2	1		
NK 160-1,7-1 / NK 160-1,7-1 U	160	7.4		1.7	1 x 1.7	1		
NK 160-2,0-1 / NK 160-2,0-1 U	170	8.7		2.0	1 x 2.0	1		
NK 160-2,4-1 / NK 160-2,4-1 U	180	10.4		2.4	2 x 1.2	1		
NK 160-3,4-1 / NK 160-3,4-1 U	250	14.8		3.4	2 x 1.7	1		
NK 160-3,6-3 / NK 160-3,6-3 U	265	5.2		3~400	3.6	3 x 1.2	3	
NK 160-5,1-3 / NK 160-5,1-3 U	375	7.4			5.1	3 x 1.7	3	
NK 160-6,0-3 / NK 160-6,0-3 U	440	8.7			6.0	3 x 2.0	3	
NK 200-1,2-1 / NK 200-1,2-1 U	150	5.2		1~230	1.2	1 x 1.2	1	
NK 200-1,7-1 / NK 200-1,7-1 U	160	7.4			1.7	1 x 1.7	1	
NK 200-2,0-1 / NK 200-2,0-1 U	170	8.7			2.0	1 x 2.0	1	
NK 200-2,4-1 / NK 200-2,4-1 U	180	10.4			2.4	2 x 1.2	1	
NK 200-3,4-1 / NK 200-3,4-1 U	250	14.8	3.4		2 x 1.7	1		
NK 200-3,6-3 / NK 200-3,6-3 U	265	5.2	3~400		3.6	3 x 1.2	3	
NK 200-5,1-3 / NK 200-5,1-3 U	375	7.4			5.1	3 x 1.7	3	
NK 200-6,0-3 / NK 200-6,0-3 U	440	8.7			6.0	3 x 2.0	3	
NK 250-1,2-1 / NK 250-1,2-1 U	180	5.2	1~230		1.2	1 x 1.2	1	
NK 250-2,0-1 / NK 250-2,0-1 U	200	8.7			2.0	1 x 2.0	1	
NK 250-2,4-1 / NK 250-2,4-1 U	265	10.4			2.4	2 x 1.2	1	
NK 250-3,0-1 / NK 250-3,0-1 U	375	13.0			3.0	1 x 3.0	1	
NK 250-3,6-3 / NK 250-3,6-3 U	375	5.2		3~400	3.6	3 x 1.2	3	
NK 250-6,0-3 / NK 250-6,0-3 U	440	8.7			6.0	3 x 2.0	3	
NK 250-9,0-3 / NK 250-9,0-3 U	660	13.0			9.0	3 x 3.0	3	
NK 315-1,2-1 / NK 315-1,2-1 U	180	5.2		1~230	1.2	1 x 1.2	1	
NK 315-2,0-1 / NK 315-2,0-1 U	200	8.7			2.0	1 x 2.0	1	
NK 315-2,4-1 / NK 315-2,4-1 U	265	10.4			2.4	2 x 1.2	1	
NK 315-3,6-3 / NK 315-3,6-3 U	375	5.2			3~400	3.6	3 x 1.2	3
NK 315-6,0-3 / NK 315-6,0-3 U	440	8.7				6.0	3 x 2.0	3
NK 315-9,0-3 / NK 315-9,0-3 U	660	13.0	9.0			3 x 3.0	3	

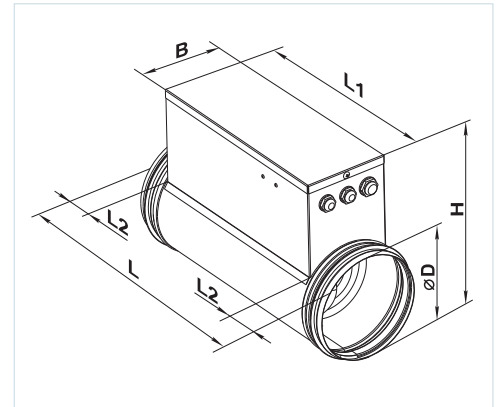


NK HEATER NK...U

HEATERS

Overall dimensions:

Type	Dimensions [mm]						Weight [kg]
	∅D	B	H	L	L1	L2	
NK-100-0.6-1	99	94	207	306	226	40	1.3
NK-100-0.8-1	99	94	207	306	226	40	1.3
NK-100-1.2-1	99	94	207	306	226	40	1.5
NK-100-1.6-1	99	94	207	306	226	40	1.5
NK-100-1.8-1	99	94	207	376	296	40	1.7
NK-125-0.6-1	124	103	230	306	226	40	1.4
NK-125-0.8-1	124	103	230	306	226	40	1.4
NK-125-1.2-1	124	103	230	306	226	40	1.7
NK-125-1.6-1	124	103	230	306	226	40	1.7
NK-125-2.4-1	124	103	230	376	296	40	1.9
NK-150-1.2-1	149	120	255	306	226	40	2.0
NK-150-1.7-1	149	120	255	306	226	40	2.0
NK-150-2.0-1	149	120	255	306	226	40	2.0
NK-150-2.4-1	149	120	255	306	226	40	2.4
NK-150-3.4-1	149	120	255	306	226	40	2.4
NK-150-3.6-3	149	120	255	376	296	40	2.8
NK-150-5.1-3	149	120	255	376	296	40	2.8
NK-150-6.0-3	149	120	255	376	296	40	2.8
NK-160-1.2-1	159	120	267	306	226	40	2.1
NK-160-1.7-1	159	120	267	306	226	40	2.1
NK-160-2.0-1	159	120	267	306	226	40	2.1
NK-160-2.4-1	159	120	267	306	226	40	2.5
NK-160-3.4-1	159	120	267	306	226	40	2.5
NK-160-3.6-3	159	120	267	376	296	40	3.0
NK-160-5.1-3	159	120	267	376	296	40	3.0
NK-160-6.0-3	159	120	267	376	296	40	3.0
NK-200-1.2-1	199	150	302	294	214	40	2.5
NK-200-1.7-1	199	150	302	294	214	40	2.5
NK-200-2.0-1	199	150	302	294	214	40	2.5
NK-200-2.4-1	199	150	302	294	214	40	3.0
NK-200-3.4-1	199	150	302	294	214	40	3.0
NK-200-3.6-3	199	150	302	376	296	40	3.5
NK-200-5.1-3	199	150	302	376	296	40	3.5
NK-200-6.0-3	199	150	302	376	296	40	3.5
NK-250-1.2-1	249	150	356	306	226	40	3.2
NK-250-2.0-1	249	150	356	306	226	40	3.2
NK-250-2.4-1	249	150	356	306	226	40	3.7
NK-250-3.0-1	249	150	356	306	226	40	3.2
NK-250-3.6-3	249	150	356	376	296	40	4.6
NK-250-6.0-3	249	150	356	376	296	40	4.6
NK-250-9.0-3	249	150	356	376	296	40	4.6
NK-315-1.2-1	313	150	425	294	214	40	4.0
NK-315-2.0-1	313	150	425	294	214	40	4.0
NK-315-2.4-1	313	150	425	294	214	40	4.8
NK-315-3.6-3	313	150	425	376	296	40	5.6
NK-315-6.0-3	313	150	425	376	296	40	5.6
NK-315-9.0-3	313	150	425	376	296	40	5.6



Overall dimensions:

Type	Dimensions [mm]					Weight [kg]	Fig. no.
	∅D	B	H	L	L1		
NK-100-0,6-1 U	99	94	204	306	227	1.5	1
NK-100-0,8-1 U	99	94	204	306	227	1.5	1
NK-100-1,2-1 U	99	120	204	370	290	1.6	1
NK-100-1,6-1 U	99	120	204	370	290	1.6	1
NK-100-1,8-1 U	99	120	204	454	374	1.8	1
NK-125-0,6-1 U	124	103	230	306	227	1.6	1
NK-125-0,8-1 U	124	103	230	306	227	1.6	1
NK-125-1,2-1 U	124	126	230	370	290	1.8	1
NK-125-1,6-1 U	124	126	230	370	290	1.8	1
NK-125-2,4-1 U	124	126	230	454	374	2	1
NK-150-1,2-1 U	149	144	255	306	226	2.1	1
NK-150-1,7-1 U	149	144	255	306	226	2.1	1
NK-150-2,0-1 U	149	144	255	306	226	2.1	1
NK-150-2,4-1 U	149	144	255	370	290	2.6	1
NK-150-3,4-1 U	149	187	340	370	298	4.3	2
NK-150-3,6-3 U	149	187	340	370	298	4.9	2
NK-150-5,1-3 U	149	187	340	370	298	4.9	2
NK-150-6,0-3 U	149	187	340	370	298	4.9	2
NK-160-1,2-1 U	159	154	267	306	226	2.2	1
NK-160-1,7-1 U	159	154	267	306	226	2.2	1
NK-160-2,0-1 U	159	154	267	306	226	2.2	1
NK-160-2,4-1 U	159	154	267	370	290	2.8	1
NK-160-3,4-1 U	159	187	350	370	298	4.6	2
NK-160-3,6-3 U	159	187	350	370	298	5.2	2
NK-160-5,1-3 U	159	187	350	370	298	5.2	2
NK-160-6,0-3 U	159	187	350	370	298	5.2	2
NK-200-1,2-1 U	199	174	302	306	228	2.6	1
NK-200-1,7-1 U	199	174	302	306	228	2.6	1
NK-200-2,0-1 U	199	174	302	306	228	2.6	1
NK-200-2,4-1 U	199	174	302	376	298	3.2	1
NK-200-3,4-1 U	199	237	389	376	298	5.2	2
NK-200-3,6-3 U	199	237	389	376	298	5.9	2
NK-200-5,1-3 U	199	237	389	376	298	5.9	2
NK-200-6,0-3 U	199	237	389	376	298	5.9	2
NK-250-1,2-1 U	249	174	356	376	298	3.3	1
NK-250-2,0-1 U	249	174	356	376	298	3.3	1
NK-250-2,4-1 U	249	174	356	376	298	3.9	1
NK-250-3,0-1 U	249	237	446	376	298	5.1	2
NK-250-3,6-3 U	249	237	446	376	298	6.6	2
NK-250-6,0-3 U	249	237	446	376	298	6.6	2
NK-250-9,0-3 U	249	237	446	376	298	6.6	2
NK-315-1,2-1 U	313	174	425	306	228	4.1	1
NK-315-2,0-1 U	313	174	425	306	228	4.1	1
NK-315-2,4-1 U	313	174	425	306	228	5	1
NK-315-3,6-3 U	313	237	514	376	298	7.4	2
NK-315-6,0-3 U	313	237	514	376	298	7.4	2
NK-315-9,0-3 U	313	237	514	376	298	7.4	2

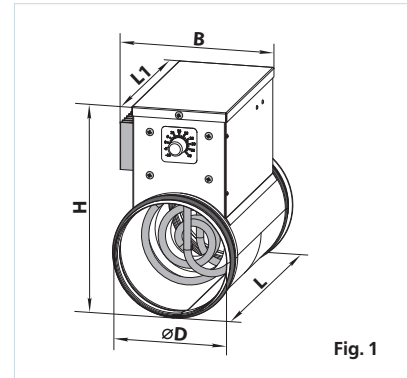


Fig. 1

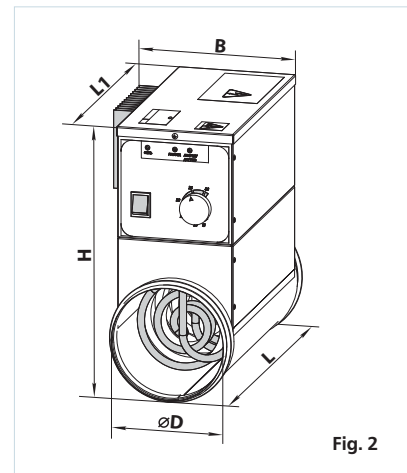


Fig. 2