



Fan-assisted trench heaters
with **lamellar heat exchanger,**
heating

TERMO - FRT

Fan-assisted heaters with lamellar heat exchanger



Trench heaters FRT with forced convection via a fan provide a very good thermal output. This is achieved via installed fans with longitudinal tangential rotors, which force air into a heat exchanger with lamellas. The fans are fitted with effective electrically commuted (EC) motors functioning on the basis of safe voltage of 24 V DC. The motors have very small consumption of electric power. The speeds of fans are controlled continuously with a controlling voltage of 0...10 V DC. The room thermostat secures the correct function of all installed FRT trench heaters, compares the set and actual temperature in the room, opens the flowing of heating medium in the heat exchanger and controls the fan's revs according to the difference in the temperatures and the set mode of operation.

The use of new technologies secures the optimal heating of the interior, which results in energy savings, the economical operation of the trench heater, the high efficiency and flexibility of heating. The trench heater is powered with safe voltage only, all components are powered with direct current of 24 V.

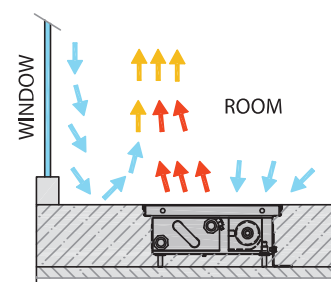
The substantial range of the heights and widths of trench heaters gives the designer a lot of options for selecting a model with the required output for the composition of the floor in question. The necessary data are presented in data sheets of individual products, including the acoustic parameters of the trench heaters.

The range of FRT models with a fan 24 V DC

Height	65 mm	80 mm	90 mm	110 mm	125 mm	140 mm
Width	175 mm	175 mm	175 mm	175 mm	-	-
	200 mm	200 mm	200 mm	200 mm	--	-
	250 mm	250 mm	250 mm	250 mm	250 mm	250 mm
	300 mm	300 mm	300 mm	300 mm	300 mm	300 mm
	-	-	425 mm	425 mm	425 mm	425 mm

Placement in the floor

The trench heaters are laid in the floor so that the heat exchanger is closer to the window side, while fans are placed deeper into the room. The vertical and horizontal distribution of temperatures in the heated room is uniform and conditions are created to provide thermal comfort. Air flow is comparable to the heat transfer with classical heating bodies placed on the wall below windows.



FRT overview of trench heaters with fan

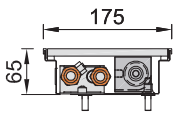
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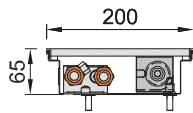
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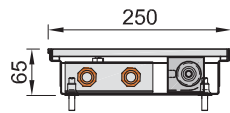
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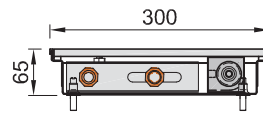
FRT 0065 0175
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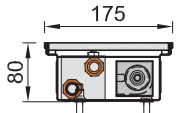
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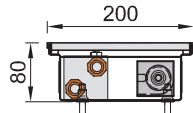
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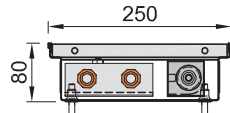
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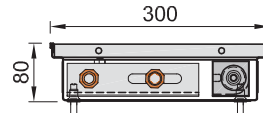
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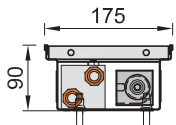
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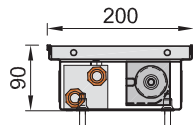
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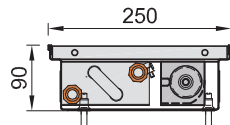
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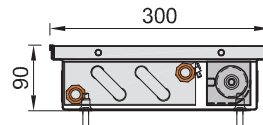
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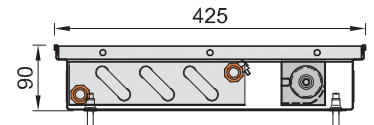
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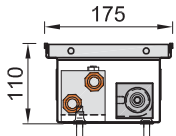
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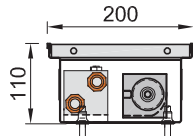
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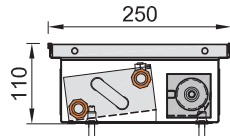
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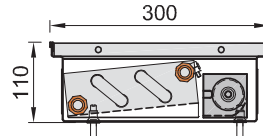
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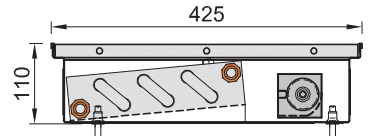
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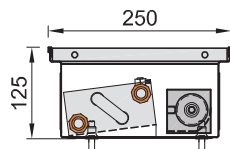
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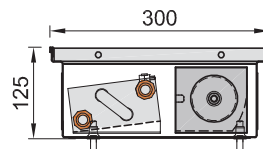
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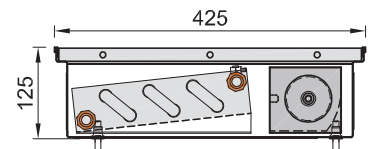
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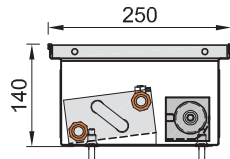
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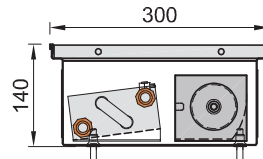
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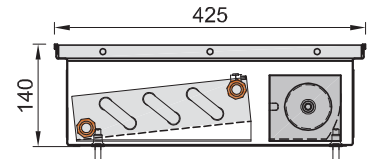
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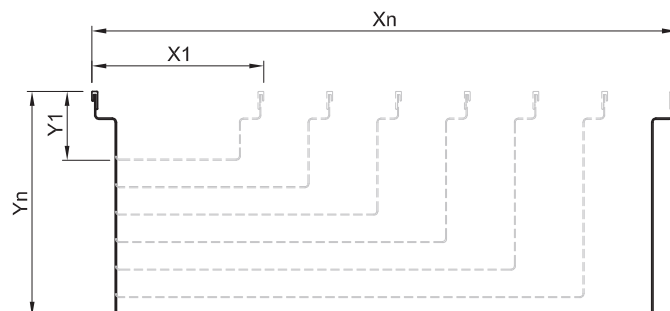
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Trench heaters according to the customer's requirements

For the needs of large projects we may adjust the dimensions, structure and internal arrangement. A solution for humid spaces, the connection of an air handling system with modified air. Thermal output measurements will be supplied with the project.



FRT 0065 0175

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- The lowest and the most narrow fan assisted trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	65 mm
Width [W]	175 mm
Length [L]	700-4800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

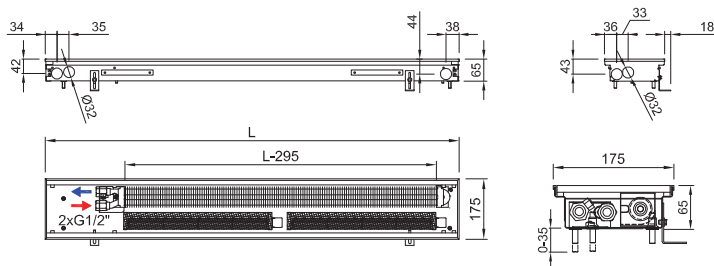
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

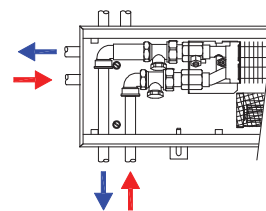
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system



Electrothermal actuator can't be installed in the body of the trench heater due to limited internal space

Accessories per order



Room thermostat



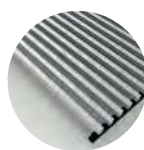
Power supply



Lockshield valve

Variants

Grilles



Transverse grilles - rigid

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0065 0175 1200 C 35 L3 L - 5

Trench heater FRT H = 65 mm, W = 175 mm, L = 1200 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „35“ Low black anodized aluminium grille, transverse, rigid „L3“ peripheral ledge „L“, black anodized aluminium, „L“ water connection on the left side (when installing the heat exchanger closer to the window, fans to the room) „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0065 0175

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	19 W	82 W	183 W	214 W	228 W
800	24 W	109 W	244 W	285 W	304 W
900	29 W	130 W	292 W	342 W	365 W
1000	34 W	185 W	414 W	484 W	517 W
1100	38 W	185 W	414 W	484 W	517 W
1200	43 W	217 W	487 W	569 W	608 W
1300	48 W	239 W	536 W	626 W	669 W
1400	53 W	266 W	597 W	698 W	745 W
1500	57 W	294 W	658 W	769 W	821 W
1600	62 W	320 W	716 W	837 W	894 W
1700	67 W	320 W	716 W	837 W	894 W
1800	72 W	370 W	828 W	968 W	1 034 W
1900	77 W	401 W	899 W	1 051 W	1 122 W
2000	81 W	428 W	960 W	1 122 W	1 198 W
2100	86 W	450 W	1 008 W	1 179 W	1 259 W
2200	91 W	450 W	1 008 W	1 179 W	1 259 W
2300	96 W	504 W	1 130 W	1 321 W	1 411 W
2400	100 W	504 W	1 130 W	1 321 W	1 411 W
2500	105 W	537 W	1 203 W	1 406 W	1 502 W
2600	110 W	559 W	1 252 W	1 463 W	1 563 W
2700	115 W	581 W	1 300 W	1 520 W	1 624 W
2800	119 W	613 W	1 374 W	1 606 W	1 715 W
2900	124 W	639 W	1 432 W	1 674 W	1 788 W
3000	129 W	639 W	1 432 W	1 674 W	1 788 W
3200	139 W	721 W	1 615 W	1 888 W	2 016 W
3400	148 W	748 W	1 676 W	1 959 W	2 092 W
3600	158 W	824 W	1 846 W	2 158 W	2 305 W
3800	167 W	851 W	1 907 W	2 229 W	2 381 W
4000	177 W	900 W	2 016 W	2 357 W	2 518 W
4200	186 W	959 W	2 148 W	2 511 W	2 682 W
4400	196 W	1 009 W	2 260 W	2 642 W	2 822 W
4600	205 W	1 068 W	2 392 W	2 796 W	2 986 W
4800	215 W	1 089 W	2 440 W	2 853 W	3 047 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	9 W	47 W	104 W	122 W	130 W
800	25 W	62 W	139 W	162 W	173 W
900	30 W	74 W	166 W	195 W	208 W
1000	35 W	105 W	236 W	276 W	295 W
1100	39 W	105 W	236 W	276 W	295 W
1200	44 W	124 W	278 W	324 W	347 W
1300	49 W	136 W	306 W	357 W	381 W
1400	54 W	152 W	340 W	398 W	425 W
1500	59 W	168 W	375 W	438 W	468 W
1600	64 W	182 W	408 W	477 W	510 W
1700	69 W	182 W	408 W	477 W	510 W
1800	74 W	211 W	472 W	552 W	590 W
1900	79 W	229 W	513 W	599 W	640 W
2000	84 W	244 W	547 W	640 W	683 W
2100	88 W	257 W	575 W	672 W	718 W
2200	93 W	257 W	575 W	672 W	718 W
2300	98 W	287 W	644 W	753 W	804 W
2400	103 W	287 W	644 W	753 W	804 W
2500	108 W	306 W	686 W	802 W	856 W
2600	113 W	319 W	714 W	834 W	891 W
2700	118 W	331 W	741 W	867 W	926 W
2800	123 W	349 W	783 W	916 W	978 W
2900	128 W	364 W	816 W	954 W	1 019 W
3000	132 W	364 W	816 W	954 W	1 019 W
3200	142 W	411 W	921 W	1 076 W	1 149 W
3400	152 W	426 W	956 W	1 117 W	1 193 W
3600	162 W	470 W	1 052 W	1 230 W	1 314 W
3800	172 W	485 W	1 087 W	1 271 W	1 357 W
4000	181 W	513 W	1 149 W	1 344 W	1 436 W
4200	191 W	547 W	1 225 W	1 432 W	1 529 W
4400	201 W	575 W	1 288 W	1 506 W	1 609 W
4600	211 W	609 W	1 364 W	1 594 W	1 702 W
4800	221 W	621 W	1 391 W	1 627 W	1 737 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	25	31	36
800	-	< 25	26	31	37
900	-	< 25	26	32	37
1000	-	< 25	27	32	38
1100	-	< 25	27	33	38
1200	-	< 25	27	33	38
1300	-	< 25	28	33	39
1400	-	< 25	28	33	39
1500	-	< 25	28	34	39
1600	-	< 25	28	34	40
1700	-	< 25	29	34	40
1800	-	< 25	29	34	40
1900	-	< 25	29	35	40
2000	-	< 25	29	35	41
2100	-	< 25	29	35	41
2200	-	25	29	35	41
2300	-	25	30	35	41
2400	-	25	30	36	41
2500	-	25	30	36	41
2600	-	25	30	36	42
2700	-	25	30	36	42
2800	-	25	30	36	42
2900	-	25	30	36	42
3000	-	25	31	36	42
3200	-	26	31	37	42
3400	-	26	31	37	43
3600	-	26	31	37	43
3800	-	26	31	37	43
4000	-	26	32	37	43
4200	-	26	32	38	44
4400	-	27	32	38	44
4600	-	27	32	38	44
4800	-	27	32	38	44



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0065 0200

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- The lowest and narrow fan assisted trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	65 mm
Width [W]	200 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

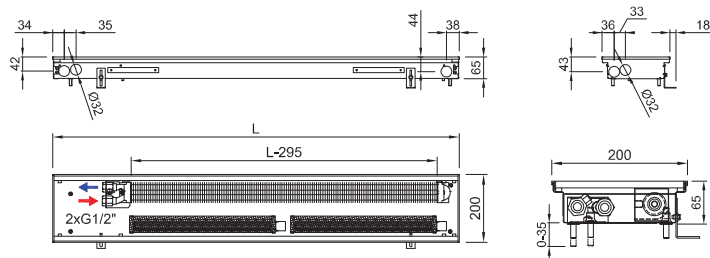
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

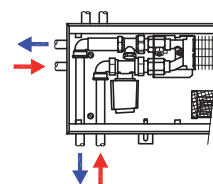
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

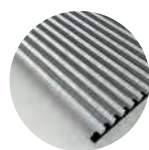


Accessories per order



Variants

Grilles



Transverse grilles - rigid

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0065 0200 2000 C 25 J2 L - 5

Trench heater FRT H = 65 mm, W = 200 mm, L = 2 000 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „25“ Low bronze anodized aluminium grille, transverse, rigid, „J2“ peripheral ledge „J“, bronze anodized aluminium, „L“ water connection on the left side (when installing the heat exchanger closer to the window, fans to the room) „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0065 0200

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	23 W	83 W	197 W	232 W	275 W
800	28 W	111 W	263 W	310 W	367 W
900	34 W	133 W	316 W	372 W	440 W
1000	40 W	188 W	448 W	527 W	623 W
1100	45 W	188 W	448 W	527 W	623 W
1200	51 W	221 W	527 W	620 W	733 W
1300	57 W	243 W	579 W	682 W	807 W
1400	62 W	271 W	645 W	759 W	898 W
1500	68 W	298 W	711 W	837 W	990 W
1600	73 W	325 W	774 W	911 W	1 078 W
1700	79 W	325 W	774 W	911 W	1 078 W
1800	85 W	376 W	895 W	1 054 W	1 247 W
1900	90 W	408 W	971 W	1 143 W	1 353 W
2000	96 W	436 W	1 037 W	1 221 W	1 445 W
2100	102 W	458 W	1 090 W	1 283 W	1 518 W
2200	107 W	458 W	1 090 W	1 283 W	1 518 W
2300	113 W	513 W	1 222 W	1 438 W	1 701 W
2400	118 W	513 W	1 222 W	1 438 W	1 701 W
2500	124 W	546 W	1 301 W	1 531 W	1 811 W
2600	130 W	568 W	1 353 W	1 593 W	1 885 W
2700	135 W	590 W	1 406 W	1 655 W	1 958 W
2800	141 W	623 W	1 485 W	1 748 W	2 068 W
2900	147 W	650 W	1 548 W	1 822 W	2 156 W
3000	152 W	650 W	1 548 W	1 822 W	2 156 W
3200	163 W	733 W	1 745 W	2 054 W	2 431 W
3400	175 W	761 W	1 811 W	2 132 W	2 523 W
3600	186 W	838 W	1 996 W	2 349 W	2 779 W
3800	197 W	866 W	2 061 W	2 426 W	2 871 W
4000	208 W	915 W	2 180 W	2 566 W	3 036 W
4200	220 W	975 W	2 322 W	2 733 W	3 234 W
4400	231 W	1 026 W	2 443 W	2 876 W	3 403 W
4600	242 W	1 086 W	2 585 W	3 043 W	3 601 W
4800	253 W	1 108 W	2 638 W	3 105 W	3 674 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	11 W	47 W	112 W	132 W	157 W
800	25 W	63 W	150 W	177 W	209 W
900	30 W	76 W	180 W	212 W	251 W
1000	35 W	107 W	255 W	300 W	355 W
1100	39 W	107 W	255 W	300 W	355 W
1200	44 W	126 W	300 W	353 W	418 W
1300	49 W	139 W	330 W	389 W	460 W
1400	54 W	155 W	368 W	433 W	512 W
1500	59 W	170 W	405 W	477 W	564 W
1600	64 W	185 W	441 W	519 W	615 W
1700	69 W	185 W	441 W	519 W	615 W
1800	74 W	214 W	510 W	601 W	711 W
1900	79 W	233 W	554 W	652 W	771 W
2000	84 W	249 W	591 W	696 W	824 W
2100	88 W	261 W	621 W	731 W	865 W
2200	93 W	261 W	621 W	731 W	865 W
2300	98 W	292 W	697 W	820 W	970 W
2400	103 W	292 W	697 W	820 W	970 W
2500	108 W	311 W	742 W	873 W	1 032 W
2600	113 W	324 W	771 W	908 W	1 075 W
2700	118 W	336 W	802 W	944 W	1 116 W
2800	123 W	355 W	847 W	997 W	1 179 W
2900	128 W	371 W	883 W	1 039 W	1 229 W
3000	132 W	371 W	883 W	1 039 W	1 229 W
3200	142 W	418 W	995 W	1 171 W	1 386 W
3400	152 W	434 W	1 032 W	1 215 W	1 438 W
3600	162 W	478 W	1 138 W	1 339 W	1 584 W
3800	172 W	494 W	1 175 W	1 383 W	1 637 W
4000	181 W	522 W	1 243 W	1 463 W	1 731 W
4200	191 W	556 W	1 324 W	1 558 W	1 844 W
4400	201 W	585 W	1 393 W	1 640 W	1 940 W
4600	211 W	619 W	1 474 W	1 735 W	2 053 W
4800	221 W	632 W	1 504 W	1 770 W	2 095 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	25	31	36
800	-	< 25	26	31	37
900	-	< 25	26	32	37
1000	-	< 25	27	32	38
1100	-	< 25	27	33	38
1200	-	< 25	27	33	38
1300	-	< 25	28	33	39
1400	-	< 25	28	33	39
1500	-	< 25	28	34	39
1600	-	< 25	28	34	40
1700	-	< 25	29	34	40
1800	-	< 25	29	34	40
1900	-	< 25	29	35	40
2000	-	< 25	29	35	41
2100	-	< 25	29	35	41
2200	-	25	29	35	41
2300	-	25	30	35	41
2400	-	25	30	36	41
2500	-	25	30	36	41
2600	-	25	30	36	42
2700	-	25	30	36	42
2800	-	25	30	36	42
2900	-	25	30	36	42
3000	-	25	31	36	42
3200	-	26	31	37	42
3400	-	26	31	37	43
3600	-	26	31	37	43
3800	-	26	31	37	43
4000	-	26	32	37	43
4200	-	26	32	38	44
4400	-	27	32	38	44
4600	-	27	32	38	44
4800	-	27	32	38	44



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0065 0250

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- The lowest and narrow fan assisted trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	65 mm
Width [W]	250 mm
Length [L]	700-4800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

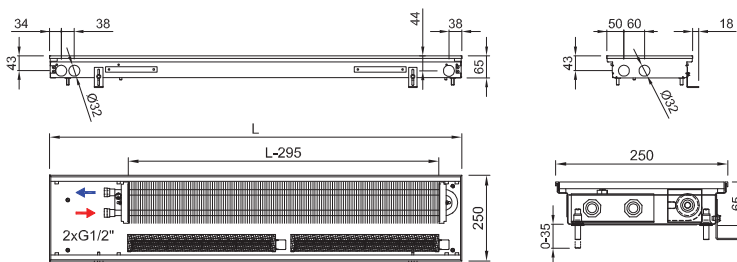
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

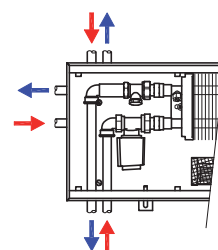
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

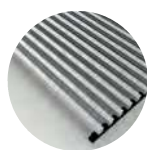


Accessories per order



Variants

Grilles



Transverse grilles - rigid

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0065 0250 1600 C 15 J1 L - 5

Trench heater **FRT** H=65 mm, W=250 mm, L=1600 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „15“ Low natural anodized aluminium grille, transverse, rigid, „J1“ peripheral ledge „J“, natur anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0065 0250

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	41 W	149 W	312 W	401 W	469 W
800	51 W	198 W	416 W	535 W	625 W
900	61 W	238 W	499 W	642 W	750 W
1000	71 W	337 W	707 W	909 W	1 062 W
1100	81 W	337 W	707 W	909 W	1 062 W
1200	92 W	396 W	832 W	1 069 W	1 249 W
1300	102 W	436 W	915 W	1 176 W	1 374 W
1400	112 W	486 W	1 019 W	1 310 W	1 531 W
1500	122 W	535 W	1 123 W	1 444 W	1 687 W
1600	132 W	586 W	1 229 W	1 580 W	1 846 W
1700	142 W	586 W	1 229 W	1 580 W	1 846 W
1800	152 W	674 W	1 414 W	1 818 W	2 124 W
1900	162 W	734 W	1 541 W	1 981 W	2 315 W
2000	172 W	784 W	1 645 W	2 115 W	2 471 W
2100	183 W	824 W	1 728 W	2 222 W	2 596 W
2200	193 W	824 W	1 728 W	2 222 W	2 596 W
2300	203 W	923 W	1 936 W	2 489 W	2 908 W
2400	213 W	923 W	1 936 W	2 489 W	2 908 W
2500	223 W	982 W	2 061 W	2 649 W	3 095 W
2600	233 W	1 022 W	2 144 W	2 756 W	3 220 W
2700	243 W	1 062 W	2 228 W	2 863 W	3 345 W
2800	253 W	1 121 W	2 352 W	3 024 W	3 533 W
2900	264 W	1 172 W	2 458 W	3 160 W	3 692 W
3000	274 W	1 172 W	2 458 W	3 160 W	3 692 W
3200	294 W	1 320 W	2 770 W	3 561 W	4 161 W
3400	314 W	1 370 W	2 874 W	3 695 W	4 317 W
3600	334 W	1 509 W	3 166 W	4 069 W	4 754 W
3800	355 W	1 558 W	3 270 W	4 203 W	4 910 W
4000	375 W	1 647 W	3 457 W	4 443 W	5 191 W
4200	395 W	1 757 W	3 688 W	4 740 W	5 538 W
4400	415 W	1 846 W	3 873 W	4 978 W	5 816 W
4600	435 W	1 956 W	4 104 W	5 275 W	6 163 W
4800	456 W	1 995 W	4 187 W	5 382 W	6 288 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	20 W	85 W	178 W	229 W	267 W
800	25 W	113 W	237 W	305 W	356 W
900	30 W	136 W	284 W	366 W	428 W
1000	35 W	192 W	403 W	518 W	605 W
1100	39 W	192 W	403 W	518 W	605 W
1200	44 W	226 W	474 W	609 W	712 W
1300	49 W	249 W	522 W	670 W	783 W
1400	54 W	277 W	581 W	747 W	873 W
1500	59 W	305 W	640 W	823 W	962 W
1600	64 W	334 W	701 W	901 W	1 052 W
1700	69 W	334 W	701 W	901 W	1 052 W
1800	74 W	384 W	806 W	1 036 W	1 211 W
1900	79 W	418 W	879 W	1 129 W	1 320 W
2000	84 W	447 W	938 W	1 206 W	1 409 W
2100	88 W	470 W	985 W	1 267 W	1 480 W
2200	93 W	470 W	985 W	1 267 W	1 480 W
2300	98 W	526 W	1 104 W	1 419 W	1 658 W
2400	103 W	526 W	1 104 W	1 419 W	1 658 W
2500	108 W	560 W	1 175 W	1 510 W	1 765 W
2600	113 W	583 W	1 222 W	1 571 W	1 836 W
2700	118 W	605 W	1 270 W	1 632 W	1 907 W
2800	123 W	639 W	1 341 W	1 724 W	2 014 W
2900	128 W	668 W	1 401 W	1 802 W	2 105 W
3000	132 W	668 W	1 401 W	1 802 W	2 105 W
3200	142 W	753 W	1 579 W	2 030 W	2 372 W
3400	152 W	781 W	1 639 W	2 107 W	2 461 W
3600	162 W	860 W	1 805 W	2 320 W	2 710 W
3800	172 W	888 W	1 864 W	2 396 W	2 799 W
4000	181 W	939 W	1 971 W	2 533 W	2 959 W
4200	191 W	1 002 W	2 103 W	2 702 W	3 157 W
4400	201 W	1 052 W	2 208 W	2 838 W	3 316 W
4600	211 W	1 115 W	2 340 W	3 007 W	3 514 W
4800	221 W	1 137 W	2 387 W	3 068 W	3 585 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	26	33	39
800	-	< 25	27	33	40
900	-	< 25	27	34	40
1000	-	< 25	28	34	41
1100	-	< 25	28	35	41
1200	-	< 25	29	35	41
1300	-	< 25	29	35	42
1400	-	< 25	30	36	42
1500	-	< 25	30	36	42
1600	-	< 25	30	36	43
1700	-	< 25	30	37	43
1800	-	< 25	31	37	43
1900	-	< 25	31	37	43
2000	-	< 25	31	37	44
2100	-	< 25	31	38	44
2200	-	< 25	32	38	44
2300	-	25	32	38	44
2400	-	25	32	38	44
2500	-	25	32	38	45
2600	-	25	33	39	45
2700	-	25	33	39	45
2800	-	25	33	39	45
2900	-	26	33	39	45
3000	-	26	33	39	45
3200	-	26	34	40	46
3400	-	26	34	40	46
3600	-	27	34	40	46
3800	-	27	34	40	46
4000	-	27	35	41	47
4200	-	27	35	41	47
4400	-	27	35	41	47
4600	-	28	35	41	47
4800	-	28	35	41	47

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0065 0300

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Low construction of the trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	65 mm
Width [W]	300 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

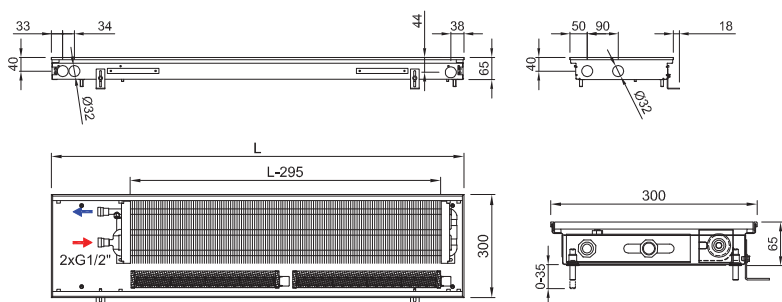
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

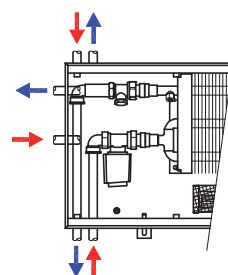
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according to the customer's choice
Ledge	Made of anodized aluminium, type and colour according to the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

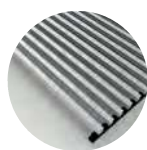


Accessories per order



Variants

Grilles



Transverse grilles - rigid

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0065 0300 2000 C 25 J2 R - 5

Trench heater **FRT** H=65 mm, W= 300 mm, L= 2 000 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „25“ Low bronze anodized aluminium grille, transverse, rigid, „J2“ peripheral ledge „J“, bronze anodized aluminium, „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0065 0300

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	49 W	179 W	388 W	495 W	559 W
800	62 W	239 W	517 W	660 W	745 W
900	74 W	287 W	621 W	792 W	894 W
1000	86 W	406 W	880 W	1 122 W	1 267 W
1100	98 W	406 W	880 W	1 122 W	1 267 W
1200	110 W	478 W	1 035 W	1 320 W	1 491 W
1300	123 W	525 W	1 138 W	1 452 W	1 640 W
1400	135 W	585 W	1 268 W	1 617 W	1 826 W
1500	147 W	645 W	1 397 W	1 782 W	2 012 W
1600	159 W	706 W	1 529 W	1 950 W	2 202 W
1700	171 W	706 W	1 529 W	1 950 W	2 202 W
1800	184 W	812 W	1 759 W	2 244 W	2 534 W
1900	196 W	885 W	1 917 W	2 445 W	2 761 W
2000	208 W	945 W	2 046 W	2 610 W	2 948 W
2100	220 W	992 W	2 150 W	2 742 W	3 097 W
2200	232 W	992 W	2 150 W	2 742 W	3 097 W
2300	244 W	1 112 W	2 409 W	3 072 W	3 469 W
2400	257 W	1 112 W	2 409 W	3 072 W	3 469 W
2500	269 W	1 183 W	2 564 W	3 270 W	3 693 W
2600	281 W	1 231 W	2 667 W	3 402 W	3 842 W
2700	293 W	1 279 W	2 771 W	3 534 W	3 991 W
2800	305 W	1 351 W	2 926 W	3 732 W	4 215 W
2900	318 W	1 411 W	3 058 W	3 901 W	4 405 W
3000	330 W	1 411 W	3 058 W	3 901 W	4 405 W
3200	354 W	1 591 W	3 446 W	4 396 W	4 964 W
3400	379 W	1 650 W	3 576 W	4 561 W	5 150 W
3600	403 W	1 817 W	3 938 W	5 023 W	5 672 W
3800	427 W	1 877 W	4 067 W	5 188 W	5 858 W
4000	452 W	1 985 W	4 300 W	5 485 W	6 193 W
4200	476 W	2 117 W	4 587 W	5 851 W	6 607 W
4400	501 W	2 223 W	4 817 W	6 145 W	6 939 W
4600	525 W	2 356 W	5 105 W	6 511 W	7 351 W
4800	549 W	2 404 W	5 208 W	6 643 W	7 502 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	27	33	40
800	-	< 25	27	34	40
900	-	< 25	28	34	41
1000	-	< 25	28	35	41
1100	-	< 25	29	35	42
1200	-	< 25	29	36	42
1300	-	< 25	30	36	42
1400	-	< 25	30	36	43
1500	-	< 25	30	37	43
1600	-	< 25	31	37	43
1700	-	< 25	31	37	43
1800	-	< 25	31	37	44
1900	-	< 25	31	38	44
2000	-	< 25	32	38	44
2100	-	< 25	32	38	44
2200	-	25	32	38	45
2300	-	25	32	39	45
2400	-	25	33	39	45
2500	-	25	33	39	45
2600	-	25	33	39	45
2700	-	26	33	39	45
2800	-	26	33	39	46
2900	-	26	34	40	46
3000	-	26	34	40	46
3200	-	26	34	40	46
3400	-	27	34	40	46
3600	-	27	35	41	47
3800	-	27	35	41	47
4000	-	27	35	41	47
4200	-	28	35	41	47
4400	-	28	36	42	48
4600	-	28	36	42	48
4800	-	28	36	42	48

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	24 W	102 W	221 W	282 W	319 W
800	30 W	136 W	295 W	376 W	425 W
900	36 W	164 W	354 W	452 W	510 W
1000	42 W	231 W	502 W	640 W	722 W
1100	47 W	231 W	502 W	640 W	722 W
1200	53 W	273 W	590 W	753 W	850 W
1300	60 W	299 W	649 W	828 W	935 W
1400	65 W	334 W	723 W	922 W	1 041 W
1500	71 W	368 W	796 W	1 016 W	1 147 W
1600	77 W	403 W	872 W	1 112 W	1 255 W
1700	83 W	403 W	872 W	1 112 W	1 255 W
1800	89 W	463 W	1 003 W	1 279 W	1 445 W
1900	95 W	505 W	1 093 W	1 394 W	1 574 W
2000	101 W	539 W	1 166 W	1 488 W	1 681 W
2100	107 W	566 W	1 226 W	1 563 W	1 766 W
2200	112 W	566 W	1 226 W	1 563 W	1 766 W
2300	118 W	634 W	1 373 W	1 751 W	1 978 W
2400	124 W	634 W	1 373 W	1 751 W	1 978 W
2500	130 W	674 W	1 462 W	1 864 W	2 105 W
2600	136 W	702 W	1 521 W	1 940 W	2 190 W
2700	142 W	729 W	1 580 W	2 015 W	2 275 W
2800	148 W	770 W	1 668 W	2 128 W	2 403 W
2900	154 W	804 W	1 743 W	2 224 W	2 511 W
3000	160 W	804 W	1 743 W	2 224 W	2 511 W
3200	171 W	907 W	1 965 W	2 506 W	2 830 W
3400	183 W	941 W	2 039 W	2 600 W	2 936 W
3600	195 W	1 036 W	2 245 W	2 864 W	3 234 W
3800	207 W	1 070 W	2 319 W	2 958 W	3 340 W
4000	219 W	1 132 W	2 452 W	3 127 W	3 531 W
4200	230 W	1 207 W	2 615 W	3 336 W	3 767 W
4400	243 W	1 267 W	2 746 W	3 503 W	3 956 W
4600	254 W	1 343 W	2 910 W	3 712 W	4 192 W
4800	266 W	1 371 W	2 969 W	3 787 W	4 276 W

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0080 0175

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Narrow and low trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	80 mm
Width [W]	175 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

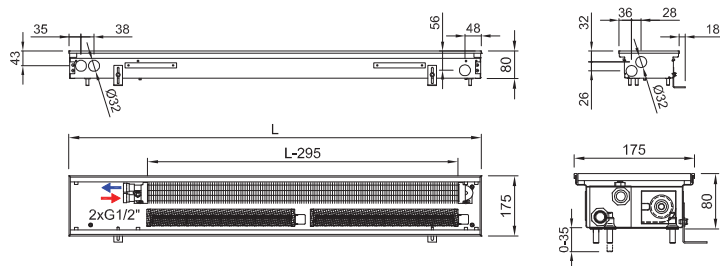
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

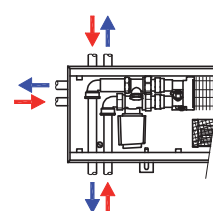
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according to the customer's choice
Ledge	Made of anodized aluminium, type and colour according to the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system



Accessories per order



Room thermostat



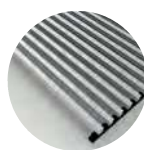
Power supply



Lockshield valve

Variants

Grilles



Transverse grilles - rigid

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0080 0175 1700 C 35 J3 L - 5

Trench heater **FRT** H=80 mm, W= 175 mm, L= 1 700 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „35“ low black anodized aluminium grille, transverse, rigid, „J3“ peripheral ledge „J“, black anodized aluminium „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0080 0175

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	27 W	94 W	235 W	291 W	347 W
800	34 W	126 W	313 W	388 W	463 W
900	41 W	151 W	375 W	466 W	556 W
1000	47 W	213 W	532 W	660 W	788 W
1100	54 W	213 W	532 W	660 W	788 W
1200	61 W	251 W	625 W	776 W	927 W
1300	67 W	276 W	688 W	854 W	1 019 W
1400	74 W	308 W	766 W	951 W	1 135 W
1500	81 W	339 W	844 W	1 048 W	1 251 W
1600	87 W	371 W	924 W	1 147 W	1 369 W
1700	94 W	371 W	924 W	1 147 W	1 369 W
1800	101 W	427 W	1 063 W	1 320 W	1 575 W
1900	108 W	465 W	1 159 W	1 438 W	1 716 W
2000	114 W	497 W	1 237 W	1 535 W	1 832 W
2100	121 W	522 W	1 299 W	1 613 W	1 925 W
2200	128 W	522 W	1 299 W	1 613 W	1 925 W
2300	134 W	584 W	1 456 W	1 807 W	2 157 W
2400	141 W	584 W	1 456 W	1 807 W	2 157 W
2500	148 W	622 W	1 549 W	1 923 W	2 296 W
2600	155 W	647 W	1 612 W	2 001 W	2 388 W
2700	161 W	672 W	1 674 W	2 079 W	2 481 W
2800	168 W	710 W	1 768 W	2 195 W	2 620 W
2900	175 W	742 W	1 848 W	2 294 W	2 738 W
3000	181 W	742 W	1 848 W	2 294 W	2 738 W
3200	195 W	836 W	2 083 W	2 585 W	3 085 W
3400	208 W	868 W	2 161 W	2 682 W	3 201 W
3600	222 W	955 W	2 380 W	2 954 W	3 526 W
3800	235 W	987 W	2 458 W	3 051 W	3 641 W
4000	248 W	1 043 W	2 598 W	3 226 W	3 850 W
4200	262 W	1 113 W	2 772 W	3 441 W	4 107 W
4400	275 W	1 169 W	2 911 W	3 614 W	4 313 W
4600	289 W	1 239 W	3 085 W	3 829 W	4 570 W
4800	302 W	1 264 W	3 147 W	3 907 W	4 663 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	13 W	54 W	134 W	166 W	198 W
800	16 W	72 W	178 W	221 W	264 W
900	20 W	86 W	214 W	266 W	317 W
1000	23 W	121 W	303 W	376 W	449 W
1100	26 W	121 W	303 W	376 W	449 W
1200	30 W	143 W	356 W	442 W	529 W
1300	32 W	157 W	392 W	487 W	581 W
1400	36 W	176 W	437 W	542 W	647 W
1500	39 W	193 W	481 W	597 W	713 W
1600	42 W	212 W	527 W	654 W	780 W
1700	46 W	212 W	527 W	654 W	780 W
1800	49 W	243 W	606 W	753 W	898 W
1900	52 W	265 W	661 W	820 W	978 W
2000	55 W	283 W	705 W	875 W	1 044 W
2100	59 W	298 W	741 W	920 W	1 097 W
2200	62 W	298 W	741 W	920 W	1 097 W
2300	65 W	333 W	830 W	1 030 W	1 230 W
2400	68 W	333 W	830 W	1 030 W	1 230 W
2500	72 W	355 W	883 W	1 096 W	1 309 W
2600	75 W	369 W	919 W	1 141 W	1 361 W
2700	78 W	383 W	954 W	1 185 W	1 414 W
2800	81 W	405 W	1 008 W	1 251 W	1 494 W
2900	85 W	423 W	1 054 W	1 308 W	1 561 W
3000	88 W	423 W	1 054 W	1 308 W	1 561 W
3200	94 W	477 W	1 188 W	1 474 W	1 759 W
3400	101 W	495 W	1 232 W	1 529 W	1 825 W
3600	107 W	544 W	1 357 W	1 684 W	2 010 W
3800	114 W	563 W	1 401 W	1 739 W	2 076 W
4000	120 W	595 W	1 481 W	1 839 W	2 195 W
4200	127 W	635 W	1 580 W	1 962 W	2 341 W
4400	133 W	666 W	1 660 W	2 060 W	2 459 W
4600	140 W	706 W	1 759 W	2 183 W	2 605 W
4800	146 W	721 W	1 794 W	2 227 W	2 658 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	< 25	30	35
800	-	< 25	25	30	35
900	-	< 25	25	31	36
1000	-	< 25	26	31	36
1100	-	< 25	26	31	37
1200	-	< 25	26	32	37
1300	-	< 25	26	32	37
1400	-	< 25	27	32	38
1500	-	< 25	27	32	38
1600	-	< 25	27	33	38
1700	-	< 25	27	33	38
1800	-	< 25	28	33	39
1900	-	< 25	28	33	39
2000	-	< 25	28	33	39
2100	-	< 25	28	34	39
2200	-	< 25	28	34	39
2300	-	< 25	28	34	39
2400	-	< 25	29	34	40
2500	-	< 25	29	34	40
2600	-	< 25	29	34	40
2700	-	< 25	29	35	40
2800	-	< 25	29	35	40
2900	-	< 25	29	35	40
3000	-	< 25	29	35	40
3200	-	25	30	35	41
3400	-	25	30	35	41
3600	-	25	30	36	41
3800	-	25	30	36	41
4000	-	25	30	36	42
4200	-	25	31	36	42
4400	-	26	31	36	42
4600	-	26	31	36	42
4800	-	26	31	37	42

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0080 0200

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Small universal trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	80 mm
Width [W]	200 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

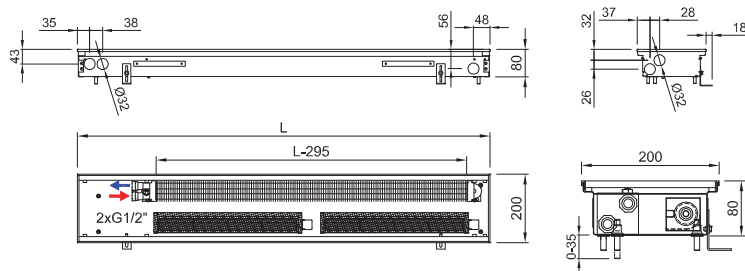
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

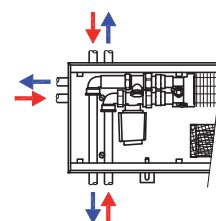
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system



Accessories per order



Variants



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0080 0200 1900 C 15 L1 L - 5

Trench heater **FRT** H=80 mm, W= 200 mm, L=1 900 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „15“ Low natural anodized aluminium grille, transverse, rigid, „L1“ peripheral ledge „L“ with an overlap, natur anodized aluminium „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0080 0200

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	44 W	154 W	250 W	310 W	371 W
800	55 W	205 W	334 W	414 W	494 W
900	66 W	246 W	400 W	496 W	593 W
1000	77 W	349 W	567 W	703 W	840 W
1100	88 W	349 W	567 W	703 W	840 W
1200	99 W	410 W	667 W	827 W	988 W
1300	110 W	451 W	734 W	910 W	1 087 W
1400	121 W	502 W	817 W	1 013 W	1 210 W
1500	132 W	554 W	901 W	1 117 W	1 334 W
1600	143 W	606 W	986 W	1 222 W	1 460 W
1700	154 W	606 W	986 W	1 222 W	1 460 W
1800	165 W	697 W	1 134 W	1 406 W	1 680 W
1900	176 W	760 W	1 236 W	1 532 W	1 831 W
2000	187 W	811 W	1 320 W	1 636 W	1 954 W
2100	197 W	852 W	1 386 W	1 718 W	2 053 W
2200	208 W	852 W	1 386 W	1 718 W	2 053 W
2300	219 W	955 W	1 553 W	1 925 W	2 300 W
2400	230 W	955 W	1 553 W	1 925 W	2 300 W
2500	241 W	1 016 W	1 653 W	2 049 W	2 448 W
2600	252 W	1 057 W	1 720 W	2 132 W	2 547 W
2700	263 W	1 098 W	1 787 W	2 214 W	2 646 W
2800	274 W	1 160 W	1 887 W	2 339 W	2 794 W
2900	285 W	1 212 W	1 972 W	2 444 W	2 920 W
3000	296 W	1 212 W	1 972 W	2 444 W	2 920 W
3200	318 W	1 366 W	2 222 W	2 754 W	3 291 W
3400	340 W	1 417 W	2 306 W	2 858 W	3 414 W
3600	362 W	1 561 W	2 539 W	3 147 W	3 760 W
3800	383 W	1 612 W	2 623 W	3 250 W	3 883 W
4000	405 W	1 704 W	2 773 W	3 436 W	4 106 W
4200	427 W	1 818 W	2 958 W	3 666 W	4 380 W
4400	449 W	1 909 W	3 106 W	3 850 W	4 600 W
4600	471 W	2 023 W	3 292 W	4 080 W	4 874 W
4800	493 W	2 064 W	3 358 W	4 162 W	4 973 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	21 W	88 W	143 W	177 W	212 W
800	27 W	117 W	190 W	236 W	282 W
900	32 W	140 W	228 W	283 W	338 W
1000	37 W	199 W	323 W	401 W	479 W
1100	43 W	199 W	323 W	401 W	479 W
1200	48 W	234 W	380 W	471 W	563 W
1300	53 W	257 W	418 W	519 W	620 W
1400	59 W	286 W	466 W	578 W	690 W
1500	64 W	316 W	514 W	637 W	761 W
1600	69 W	345 W	562 W	697 W	832 W
1700	75 W	345 W	562 W	697 W	832 W
1800	80 W	397 W	647 W	802 W	958 W
1900	85 W	433 W	705 W	873 W	1 044 W
2000	91 W	462 W	753 W	933 W	1 114 W
2100	95 W	486 W	790 W	979 W	1 170 W
2200	101 W	486 W	790 W	979 W	1 170 W
2300	106 W	544 W	885 W	1 097 W	1 311 W
2400	111 W	544 W	885 W	1 097 W	1 311 W
2500	117 W	579 W	942 W	1 168 W	1 396 W
2600	122 W	603 W	981 W	1 215 W	1 452 W
2700	127 W	626 W	1 019 W	1 262 W	1 509 W
2800	133 W	661 W	1 076 W	1 334 W	1 593 W
2900	138 W	691 W	1 124 W	1 393 W	1 665 W
3000	143 W	691 W	1 124 W	1 393 W	1 665 W
3200	154 W	779 W	1 267 W	1 570 W	1 876 W
3400	165 W	808 W	1 315 W	1 629 W	1 946 W
3600	175 W	890 W	1 448 W	1 794 W	2 144 W
3800	185 W	919 W	1 495 W	1 853 W	2 214 W
4000	196 W	971 W	1 581 W	1 959 W	2 341 W
4200	207 W	1 036 W	1 686 W	2 090 W	2 497 W
4400	217 W	1 088 W	1 771 W	2 195 W	2 623 W
4600	228 W	1 153 W	1 877 W	2 326 W	2 779 W
4800	239 W	1 177 W	1 914 W	2 373 W	2 835 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	25	31	36
800	-	< 25	26	31	37
900	-	< 25	26	32	37
1000	-	< 25	27	32	38
1100	-	< 25	27	33	38
1200	-	< 25	27	33	38
1300	-	< 25	28	33	39
1400	-	< 25	28	33	39
1500	-	< 25	28	34	39
1600	-	< 25	28	34	40
1700	-	< 25	29	34	40
1800	-	< 25	29	34	40
1900	-	< 25	29	35	40
2000	-	< 25	29	35	41
2100	-	< 25	29	35	41
2200	-	25	29	35	41
2300	-	25	30	35	41
2400	-	25	30	36	41
2500	-	25	30	36	41
2600	-	25	30	36	42
2700	-	25	30	36	42
2800	-	25	30	36	42
2900	-	25	30	36	42
3000	-	25	31	36	42
3200	-	26	31	37	42
3400	-	26	31	37	43
3600	-	26	31	37	43
3800	-	26	31	37	43
4000	-	26	32	37	43
4200	-	26	32	38	44
4400	-	27	32	38	44
4600	-	27	32	38	44
4800	-	27	32	38	44

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0080 0250

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Small universal trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	80 mm
Width [W]	250 mm
Length [L]	700-4800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

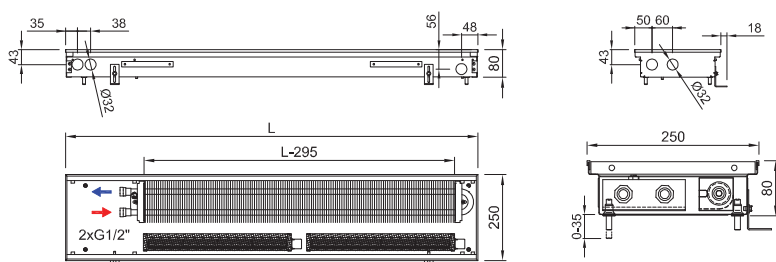
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

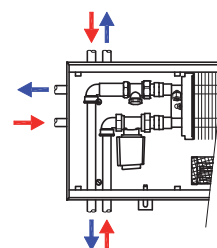
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

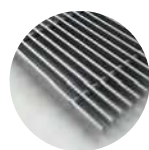


Accessories per order

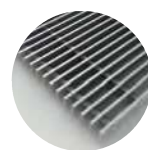


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0080 0250 0900 C 12 J1 L - 5

Trench heater **FRT** H= 80 mm, W= 250 mm, L=900 mm, „C” Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „12” natur anodized aluminium grille, linear, rigid „J1” peripheral ledge „J”, natur anodized aluminium, „L” water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5” 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0080 0250

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	51 W	163 W	363 W	479 W	535 W
800	64 W	218 W	483 W	639 W	714 W
900	76 W	262 W	580 W	766 W	857 W
1000	89 W	371 W	822 W	1 086 W	1 213 W
1100	102 W	371 W	822 W	1 086 W	1 213 W
1200	114 W	436 W	967 W	1 277 W	1 428 W
1300	127 W	479 W	1 064 W	1 405 W	1 570 W
1400	140 W	534 W	1 184 W	1 565 W	1 749 W
1500	152 W	588 W	1 305 W	1 724 W	1 927 W
1600	165 W	644 W	1 429 W	1 887 W	2 109 W
1700	178 W	644 W	1 429 W	1 887 W	2 109 W
1800	190 W	741 W	1 644 W	2 172 W	2 427 W
1900	203 W	808 W	1 791 W	2 366 W	2 645 W
2000	216 W	862 W	1 912 W	2 526 W	2 823 W
2100	228 W	906 W	2 009 W	2 654 W	2 966 W
2200	241 W	906 W	2 009 W	2 654 W	2 966 W
2300	253 W	1 015 W	2 251 W	2 973 W	3 323 W
2400	266 W	1 015 W	2 251 W	2 973 W	3 323 W
2500	279 W	1 080 W	2 396 W	3 165 W	3 537 W
2600	291 W	1 124 W	2 492 W	3 292 W	3 680 W
2700	304 W	1 167 W	2 589 W	3 420 W	3 822 W
2800	317 W	1 233 W	2 734 W	3 612 W	4 036 W
2900	329 W	1 288 W	2 857 W	3 775 W	4 218 W
3000	342 W	1 288 W	2 857 W	3 775 W	4 218 W
3200	367 W	1 452 W	3 220 W	4 254 W	4 754 W
3400	392 W	1 506 W	3 341 W	4 413 W	4 932 W
3600	418 W	1 659 W	3 679 W	4 860 W	5 432 W
3800	443 W	1 713 W	3 800 W	5 020 W	5 610 W
4000	468 W	1 811 W	4 018 W	5 307 W	5 932 W
4200	494 W	1 932 W	4 286 W	5 662 W	6 328 W
4400	519 W	2 029 W	4 501 W	5 946 W	6 645 W
4600	544 W	2 150 W	4 769 W	6 301 W	7 041 W
4800	569 W	2 194 W	4 866 W	6 428 W	7 184 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	25 W	93 W	207 W	273 W	305 W
800	31 W	124 W	275 W	364 W	407 W
900	37 W	149 W	331 W	437 W	489 W
1000	43 W	212 W	469 W	619 W	692 W
1100	49 W	212 W	469 W	619 W	692 W
1200	55 W	249 W	551 W	728 W	814 W
1300	61 W	273 W	607 W	801 W	895 W
1400	68 W	304 W	675 W	892 W	997 W
1500	74 W	335 W	744 W	983 W	1 099 W
1600	80 W	367 W	815 W	1 076 W	1 202 W
1700	86 W	367 W	815 W	1 076 W	1 202 W
1800	92 W	422 W	937 W	1 238 W	1 384 W
1900	98 W	461 W	1 021 W	1 349 W	1 508 W
2000	105 W	491 W	1 090 W	1 440 W	1 609 W
2100	110 W	517 W	1 145 W	1 513 W	1 691 W
2200	117 W	517 W	1 145 W	1 513 W	1 691 W
2300	122 W	579 W	1 283 W	1 695 W	1 895 W
2400	129 W	579 W	1 283 W	1 695 W	1 895 W
2500	135 W	616 W	1 366 W	1 804 W	2 017 W
2600	141 W	641 W	1 421 W	1 877 W	2 098 W
2700	147 W	665 W	1 476 W	1 950 W	2 179 W
2800	153 W	703 W	1 559 W	2 059 W	2 301 W
2900	159 W	734 W	1 629 W	2 152 W	2 405 W
3000	166 W	734 W	1 629 W	2 152 W	2 405 W
3200	178 W	828 W	1 836 W	2 425 W	2 710 W
3400	190 W	859 W	1 905 W	2 516 W	2 812 W
3600	202 W	946 W	2 097 W	2 771 W	3 097 W
3800	214 W	977 W	2 166 W	2 862 W	3 198 W
4000	227 W	1 032 W	2 291 W	3 026 W	3 382 W
4200	239 W	1 101 W	2 444 W	3 228 W	3 608 W
4400	251 W	1 157 W	2 566 W	3 390 W	3 788 W
4600	263 W	1 226 W	2 719 W	3 592 W	4 014 W
4800	275 W	1 251 W	2 774 W	3 665 W	4 096 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	26	33	39
800	-	< 25	27	33	40
900	-	< 25	27	34	40
1000	-	< 25	28	34	41
1100	-	< 25	28	35	41
1200	-	< 25	29	35	41
1300	-	< 25	29	35	42
1400	-	< 25	30	36	42
1500	-	< 25	30	36	42
1600	-	< 25	30	36	43
1700	-	< 25	30	37	43
1800	-	< 25	31	37	43
1900	-	< 25	31	37	43
2000	-	< 25	31	37	44
2100	-	< 25	31	38	44
2200	-	< 25	32	38	44
2300	-	25	32	38	44
2400	-	25	32	38	44
2500	-	25	32	38	45
2600	-	25	33	39	45
2700	-	25	33	39	45
2800	-	25	33	39	45
2900	-	26	33	39	45
3000	-	26	33	39	45
3200	-	26	34	40	46
3400	-	26	34	40	46
3600	-	27	34	40	46
3800	-	27	34	40	46
4000	-	27	35	41	47
4200	-	27	35	41	47
4400	-	27	35	41	47
4600	-	28	35	41	47
4800	-	28	35	41	47



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0080 0300

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Low trench heater with a good heating output
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment

Technical data

Trench heater

Height [H]	80 mm
Width [W]	300 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

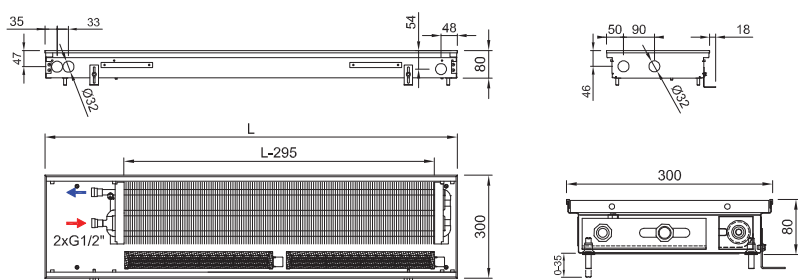
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

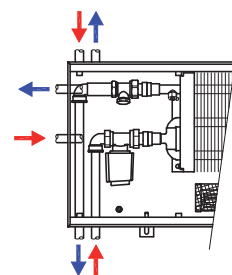
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

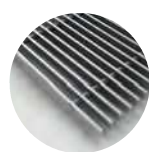


Accessories per order

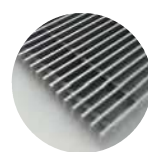


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0080 0300 2200 C 21 J2 R - 5

Trench heater **FRT** H = 80 mm, W = 300 mm, L = 2 200 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „21“ bronze anodized aluminium grille, transverse, roll-up „J2“ peripheral ledge „J“, bronze anodized aluminium, „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0080 0300

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	59 W	190 W	416 W	532 W	612 W
800	74 W	253 W	555 W	709 W	816 W
900	89 W	304 W	666 W	851 W	979 W
1000	103 W	430 W	943 W	1 206 W	1 387 W
1100	118 W	430 W	943 W	1 206 W	1 387 W
1200	133 W	506 W	1 110 W	1 419 W	1 632 W
1300	147 W	556 W	1 221 W	1 561 W	1 795 W
1400	162 W	620 W	1 360 W	1 738 W	1 999 W
1500	177 W	683 W	1 498 W	1 915 W	2 203 W
1600	191 W	747 W	1 640 W	2 096 W	2 411 W
1700	206 W	747 W	1 640 W	2 096 W	2 411 W
1800	221 W	860 W	1 887 W	2 412 W	2 774 W
1900	235 W	937 W	2 056 W	2 628 W	3 023 W
2000	250 W	1 000 W	2 195 W	2 806 W	3 227 W
2100	265 W	1 051 W	2 306 W	2 948 W	3 390 W
2200	279 W	1 051 W	2 306 W	2 948 W	3 390 W
2300	294 W	1 177 W	2 583 W	3 302 W	3 798 W
2400	309 W	1 177 W	2 583 W	3 302 W	3 798 W
2500	323 W	1 253 W	2 750 W	3 515 W	4 043 W
2600	338 W	1 304 W	2 861 W	3 657 W	4 206 W
2700	353 W	1 355 W	2 972 W	3 799 W	4 369 W
2800	367 W	1 430 W	3 138 W	4 012 W	4 614 W
2900	382 W	1 495 W	3 280 W	4 193 W	4 822 W
3000	397 W	1 495 W	3 280 W	4 193 W	4 822 W
3200	426 W	1 685 W	3 696 W	4 725 W	5 434 W
3400	455 W	1 748 W	3 835 W	4 902 W	5 638 W
3600	485 W	1 925 W	4 223 W	5 399 W	6 209 W
3800	514 W	1 988 W	4 362 W	5 576 W	6 413 W
4000	543 W	2 102 W	4 611 W	5 895 W	6 780 W
4200	573 W	2 242 W	4 919 W	6 289 W	7 233 W
4400	602 W	2 355 W	5 166 W	6 605 W	7 596 W
4600	631 W	2 495 W	5 474 W	6 998 W	8 049 W
4800	661 W	2 546 W	5 585 W	7 140 W	8 212 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	29 W	108 W	237 W	303 W	349 W
800	36 W	144 W	316 W	404 W	465 W
900	43 W	173 W	380 W	485 W	558 W
1000	50 W	245 W	538 W	688 W	791 W
1100	57 W	245 W	538 W	688 W	791 W
1200	64 W	288 W	633 W	809 W	930 W
1300	71 W	317 W	696 W	890 W	1 023 W
1400	78 W	353 W	775 W	991 W	1 140 W
1500	86 W	389 W	854 W	1 092 W	1 256 W
1600	92 W	426 W	935 W	1 195 W	1 375 W
1700	100 W	426 W	935 W	1 195 W	1 375 W
1800	107 W	490 W	1 076 W	1 375 W	1 582 W
1900	114 W	534 W	1 172 W	1 498 W	1 723 W
2000	121 W	570 W	1 251 W	1 600 W	1 840 W
2100	128 W	599 W	1 315 W	1 681 W	1 933 W
2200	135 W	599 W	1 315 W	1 681 W	1 933 W
2300	142 W	671 W	1 473 W	1 883 W	2 165 W
2400	150 W	671 W	1 473 W	1 883 W	2 165 W
2500	156 W	714 W	1 568 W	2 004 W	2 305 W
2600	164 W	743 W	1 631 W	2 085 W	2 398 W
2700	171 W	773 W	1 694 W	2 166 W	2 491 W
2800	178 W	815 W	1 789 W	2 287 W	2 631 W
2900	185 W	852 W	1 870 W	2 391 W	2 749 W
3000	192 W	852 W	1 870 W	2 391 W	2 749 W
3200	206 W	961 W	2 107 W	2 694 W	3 098 W
3400	220 W	997 W	2 186 W	2 795 W	3 214 W
3600	235 W	1 097 W	2 408 W	3 078 W	3 540 W
3800	249 W	1 133 W	2 487 W	3 179 W	3 656 W
4000	263 W	1 198 W	2 629 W	3 361 W	3 865 W
4200	277 W	1 278 W	2 804 W	3 585 W	4 124 W
4400	291 W	1 343 W	2 945 W	3 766 W	4 331 W
4600	305 W	1 422 W	3 121 W	3 990 W	4 589 W
4800	320 W	1 452 W	3 184 W	4 071 W	4 682 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	27	33	40
800	-	< 25	27	34	40
900	-	< 25	28	34	41
1000	-	< 25	28	35	41
1100	-	< 25	29	35	42
1200	-	< 25	29	36	42
1300	-	< 25	30	36	42
1400	-	< 25	30	36	43
1500	-	< 25	30	37	43
1600	-	< 25	31	37	43
1700	-	< 25	31	37	43
1800	-	< 25	31	37	44
1900	-	< 25	31	38	44
2000	-	< 25	32	38	44
2100	-	< 25	32	38	44
2200	-	25	32	38	45
2300	-	25	32	39	45
2400	-	25	33	39	45
2500	-	25	33	39	45
2600	-	25	33	39	45
2700	-	26	33	39	45
2800	-	26	33	39	46
2900	-	26	34	40	46
3000	-	26	34	40	46
3200	-	26	34	40	46
3400	-	27	34	40	46
3600	-	27	35	41	47
3800	-	27	35	41	47
4000	-	27	35	41	47
4200	-	28	35	41	47
4400	-	28	36	42	48
4600	-	28	36	42	48
4800	-	28	36	42	48

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0090 0175

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Small narrow trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	90 mm
Width [W]	175 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

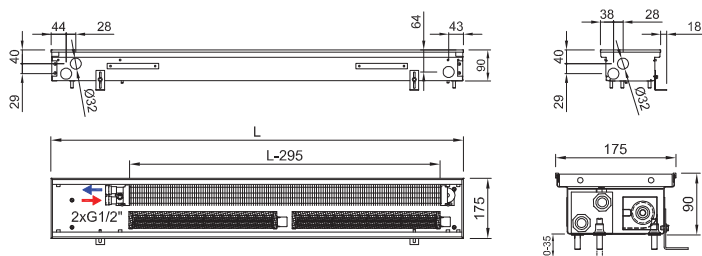
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

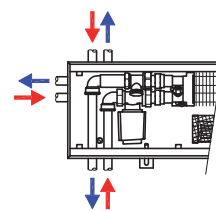
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system



Accessories per order



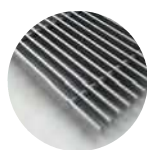
Room thermostat

Power supply

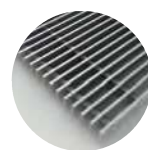
Lockshield valve

Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0090 0175 1400 C 63 L1 L - 5

Trench heater **FRT** H=90 mm, W=175 mm, L=1 400 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „63“ natural oak grille, transverse, roll-up „L1“ peripheral ledge „L“ with an overlap, natur anodized aluminium „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room) „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0090 0175

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	29 W	102 W	251 W	324 W	390 W
800	37 W	136 W	334 W	432 W	520 W
900	44 W	163 W	401 W	519 W	624 W
1000	51 W	231 W	568 W	735 W	884 W
1100	58 W	231 W	568 W	735 W	884 W
1200	66 W	272 W	668 W	865 W	1 040 W
1300	73 W	299 W	735 W	951 W	1 144 W
1400	80 W	333 W	818 W	1 060 W	1 274 W
1500	87 W	367 W	902 W	1 168 W	1 403 W
1600	95 W	402 W	987 W	1 278 W	1 536 W
1700	102 W	402 W	987 W	1 278 W	1 536 W
1800	109 W	463 W	1 136 W	1 470 W	1 767 W
1900	116 W	504 W	1 238 W	1 602 W	1 926 W
2000	124 W	538 W	1 321 W	1 710 W	2 056 W
2100	131 W	565 W	1 388 W	1 797 W	2 160 W
2200	138 W	565 W	1 388 W	1 797 W	2 160 W
2300	146 W	633 W	1 555 W	2 013 W	2 420 W
2400	153 W	633 W	1 555 W	2 013 W	2 420 W
2500	160 W	674 W	1 655 W	2 143 W	2 576 W
2600	167 W	701 W	1 722 W	2 229 W	2 680 W
2700	175 W	728 W	1 789 W	2 316 W	2 784 W
2800	182 W	769 W	1 889 W	2 446 W	2 939 W
2900	189 W	804 W	1 974 W	2 556 W	3 072 W
3000	196 W	804 W	1 974 W	2 556 W	3 072 W
3200	211 W	906 W	2 225 W	2 880 W	3 462 W
3400	225 W	940 W	2 308 W	2 988 W	3 592 W
3600	240 W	1 035 W	2 542 W	3 291 W	3 956 W
3800	254 W	1 069 W	2 625 W	3 399 W	4 086 W
4000	269 W	1 130 W	2 776 W	3 594 W	4 320 W
4200	283 W	1 206 W	2 961 W	3 834 W	4 608 W
4400	298 W	1 267 W	3 110 W	4 026 W	4 839 W
4600	312 W	1 342 W	3 295 W	4 266 W	5 128 W
4800	327 W	1 369 W	3 362 W	4 353 W	5 232 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	14 W	58 W	143 W	185 W	222 W
800	18 W	78 W	190 W	246 W	296 W
900	21 W	93 W	229 W	296 W	356 W
1000	25 W	132 W	324 W	419 W	504 W
1100	28 W	132 W	324 W	419 W	504 W
1200	32 W	155 W	381 W	493 W	593 W
1300	35 W	170 W	419 W	542 W	652 W
1400	39 W	190 W	466 W	604 W	726 W
1500	42 W	209 W	514 W	666 W	800 W
1600	46 W	229 W	563 W	729 W	876 W
1700	49 W	229 W	563 W	729 W	876 W
1800	53 W	264 W	648 W	838 W	1 007 W
1900	56 W	287 W	706 W	913 W	1 098 W
2000	60 W	307 W	753 W	975 W	1 172 W
2100	63 W	322 W	791 W	1 025 W	1 231 W
2200	67 W	322 W	791 W	1 025 W	1 231 W
2300	71 W	361 W	887 W	1 148 W	1 380 W
2400	74 W	361 W	887 W	1 148 W	1 380 W
2500	77 W	384 W	944 W	1 222 W	1 469 W
2600	81 W	400 W	982 W	1 271 W	1 528 W
2700	85 W	415 W	1 020 W	1 320 W	1 587 W
2800	88 W	438 W	1 077 W	1 395 W	1 676 W
2900	92 W	458 W	1 125 W	1 457 W	1 751 W
3000	95 W	458 W	1 125 W	1 457 W	1 751 W
3200	102 W	517 W	1 269 W	1 642 W	1 974 W
3400	109 W	536 W	1 316 W	1 704 W	2 048 W
3600	116 W	590 W	1 449 W	1 876 W	2 255 W
3800	123 W	609 W	1 497 W	1 938 W	2 330 W
4000	130 W	644 W	1 583 W	2 049 W	2 463 W
4200	137 W	688 W	1 688 W	2 186 W	2 627 W
4400	144 W	722 W	1 773 W	2 295 W	2 759 W
4600	151 W	765 W	1 879 W	2 432 W	2 924 W
4800	158 W	780 W	1 917 W	2 482 W	2 983 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	< 25	30	35
800	-	< 25	25	30	35
900	-	< 25	25	31	36
1000	-	< 25	26	31	36
1100	-	< 25	26	31	37
1200	-	< 25	26	32	37
1300	-	< 25	26	32	37
1400	-	< 25	27	32	38
1500	-	< 25	27	32	38
1600	-	< 25	27	33	38
1700	-	< 25	27	33	38
1800	-	< 25	28	33	39
1900	-	< 25	28	33	39
2000	-	< 25	28	33	39
2100	-	< 25	28	34	39
2200	-	< 25	28	34	39
2300	-	< 25	28	34	39
2400	-	< 25	29	34	40
2500	-	< 25	29	34	40
2600	-	< 25	29	34	40
2700	-	< 25	29	35	40
2800	-	< 25	29	35	40
2900	-	< 25	29	35	40
3000	-	< 25	29	35	40
3200	-	25	30	35	41
3400	-	25	30	35	41
3600	-	25	30	36	41
3800	-	25	30	36	41
4000	-	25	30	36	42
4200	-	25	31	36	42
4400	-	26	31	36	42
4600	-	26	31	36	42
4800	-	26	31	37	42

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0090 0200

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Small universal trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	90 mm
Width [W]	200 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

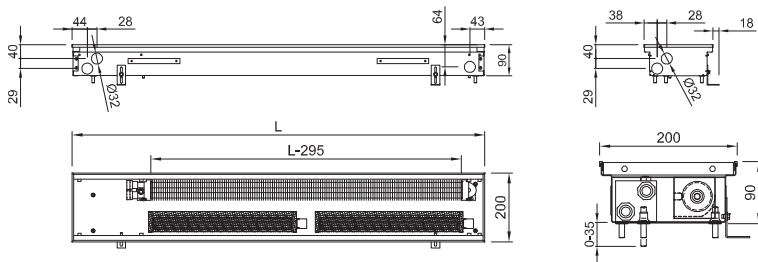
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

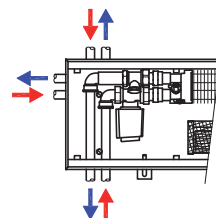
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

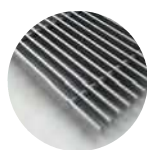


Accessories per order

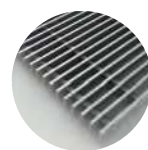


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0090 0200 1900 C 52 J1 R - 5

Trench heater **FRT** H=90 mm, W= 200 mm, L=1 900 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „52“ stainless grille, transverse, roll-up, „J1“ peripheral ledge „J“, natur anodized aluminium, „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0090 0200

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	48 W	168 W	313 W	432 W	460 W
800	60 W	223 W	417 W	576 W	613 W
900	72 W	268 W	500 W	691 W	736 W
1000	84 W	380 W	708 W	978 W	1 043 W
1100	96 W	380 W	708 W	978 W	1 043 W
1200	107 W	447 W	833 W	1 151 W	1 227 W
1300	119 W	492 W	917 W	1 266 W	1 349 W
1400	131 W	548 W	1 021 W	1 410 W	1 503 W
1500	143 W	603 W	1 125 W	1 554 W	1 656 W
1600	155 W	657 W	1 225 W	1 692 W	1 803 W
1700	167 W	657 W	1 225 W	1 692 W	1 803 W
1800	179 W	760 W	1 417 W	1 957 W	2 085 W
1900	191 W	825 W	1 538 W	2 124 W	2 263 W
2000	202 W	880 W	1 642 W	2 268 W	2 416 W
2100	214 W	925 W	1 725 W	2 383 W	2 539 W
2200	226 W	925 W	1 725 W	2 383 W	2 539 W
2300	238 W	1 037 W	1 933 W	2 670 W	2 846 W
2400	250 W	1 037 W	1 933 W	2 670 W	2 846 W
2500	262 W	1 104 W	2 058 W	2 843 W	3 030 W
2600	274 W	1 149 W	2 142 W	2 958 W	3 152 W
2700	285 W	1 193 W	2 225 W	3 073 W	3 275 W
2800	297 W	1 260 W	2 350 W	3 246 W	3 459 W
2900	309 W	1 314 W	2 450 W	3 384 W	3 606 W
3000	321 W	1 314 W	2 450 W	3 384 W	3 606 W
3200	345 W	1 482 W	2 763 W	3 816 W	4 066 W
3400	369 W	1 537 W	2 867 W	3 960 W	4 219 W
3600	392 W	1 694 W	3 158 W	4 362 W	4 649 W
3800	416 W	1 750 W	3 263 W	4 506 W	4 802 W
4000	440 W	1 850 W	3 450 W	4 765 W	5 078 W
4200	464 W	1 971 W	3 675 W	5 076 W	5 409 W
4400	487 W	2 074 W	3 867 W	5 341 W	5 691 W
4600	511 W	2 194 W	4 092 W	5 652 W	6 022 W
4800	535 W	2 239 W	4 175 W	5 767 W	6 145 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	23 W	96 W	178 W	246 W	262 W
800	29 W	127 W	238 W	328 W	349 W
900	35 W	153 W	285 W	394 W	420 W
1000	41 W	217 W	404 W	558 W	595 W
1100	46 W	217 W	404 W	558 W	595 W
1200	52 W	255 W	475 W	656 W	700 W
1300	58 W	280 W	523 W	722 W	769 W
1400	63 W	312 W	582 W	804 W	857 W
1500	69 W	344 W	641 W	886 W	944 W
1600	75 W	375 W	698 W	965 W	1 028 W
1700	81 W	375 W	698 W	965 W	1 028 W
1800	87 W	433 W	808 W	1 116 W	1 189 W
1900	92 W	470 W	877 W	1 211 W	1 290 W
2000	98 W	502 W	936 W	1 293 W	1 377 W
2100	104 W	527 W	983 W	1 359 W	1 448 W
2200	109 W	527 W	983 W	1 359 W	1 448 W
2300	115 W	591 W	1 102 W	1 522 W	1 623 W
2400	121 W	591 W	1 102 W	1 522 W	1 623 W
2500	127 W	629 W	1 173 W	1 621 W	1 727 W
2600	133 W	655 W	1 221 W	1 686 W	1 797 W
2700	138 W	680 W	1 269 W	1 752 W	1 867 W
2800	144 W	718 W	1 340 W	1 851 W	1 972 W
2900	150 W	749 W	1 397 W	1 929 W	2 056 W
3000	155 W	749 W	1 397 W	1 929 W	2 056 W
3200	167 W	845 W	1 575 W	2 176 W	2 318 W
3400	179 W	876 W	1 635 W	2 258 W	2 405 W
3600	190 W	966 W	1 800 W	2 487 W	2 650 W
3800	201 W	998 W	1 860 W	2 569 W	2 738 W
4000	213 W	1 055 W	1 967 W	2 717 W	2 895 W
4200	225 W	1 124 W	2 095 W	2 894 W	3 084 W
4400	236 W	1 182 W	2 205 W	3 045 W	3 245 W
4600	247 W	1 251 W	2 333 W	3 222 W	3 433 W
4800	259 W	1 276 W	2 380 W	3 288 W	3 503 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	39	42
800	-	< 25	30	40	43
900	-	< 25	30	41	44
1000	-	< 25	31	41	45
1100	-	< 25	32	42	45
1200	-	< 25	32	42	46
1300	-	< 25	33	43	46
1400	-	< 25	33	43	47
1500	-	< 25	34	44	47
1600	-	< 25	34	44	48
1700	-	< 25	35	45	48
1800	-	< 25	35	45	48
1900	-	< 25	35	45	49
2000	-	< 25	36	46	49
2100	-	< 25	36	46	49
2200	-	< 25	36	46	50
2300	-	< 25	37	47	50
2400	-	< 25	37	47	50
2500	-	< 25	37	47	51
2600	-	< 25	38	48	51
2700	-	25	38	48	51
2800	-	25	38	48	51
2900	-	25	38	48	52
3000	-	25	38	48	52
3200	-	25	39	49	52
3400	-	25	39	49	53
3600	-	25	40	50	53
3800	-	25	40	50	53
4000	-	25	40	50	54
4200	-	25	41	51	54
4400	-	25	41	51	54
4600	-	25	41	51	55
4800	-	25	42	51	55

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0090 0250

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Small universal trench heater
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	90 mm
Width [W]	250 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

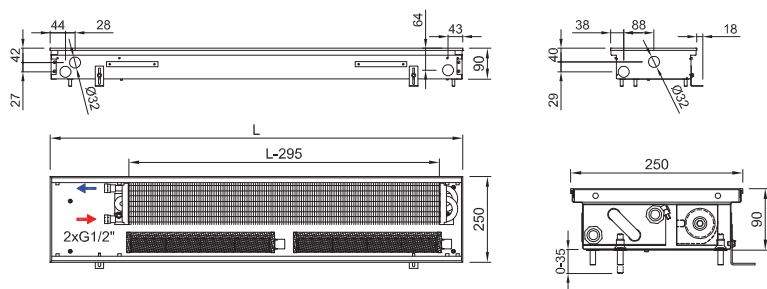
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

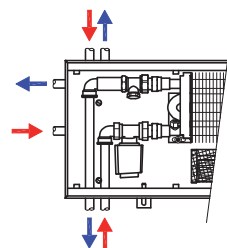
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



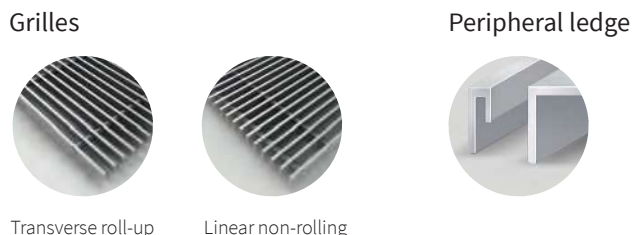
Connection to heating system



Accessories per order



Variants



🔊 Grilles → 6 📏 Ledges → 8 📢 Acoustic power → 13 🛠️ Accessories → 14 📊 Hydraulic parameters → 126 ⚙️ Wiring → 129

Code example: FRT 0090 0250 1500 C 62 L2 L - 5

Trench heater **FRT** H=90 mm, W= 250 mm, L=1 500 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „62“ stained beech grille, transverse, roll-up „L2“ peripheral ledge „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room) „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0090 0250

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	79 W	253 W	535 W	705 W	752 W
800	98 W	337 W	714 W	939 W	1 003 W
900	118 W	404 W	856 W	1 127 W	1 204 W
1000	137 W	573 W	1 213 W	1 597 W	1 705 W
1100	157 W	573 W	1 213 W	1 597 W	1 705 W
1200	176 W	674 W	1 427 W	1 879 W	2 006 W
1300	196 W	742 W	1 570 W	2 067 W	2 206 W
1400	215 W	826 W	1 748 W	2 302 W	2 457 W
1500	235 W	910 W	1 927 W	2 536 W	2 708 W
1600	254 W	991 W	2 098 W	2 762 W	2 949 W
1700	274 W	991 W	2 098 W	2 762 W	2 949 W
1800	293 W	1 146 W	2 426 W	3 194 W	3 410 W
1900	313 W	1 244 W	2 633 W	3 466 W	3 701 W
2000	332 W	1 328 W	2 811 W	3 701 W	3 952 W
2100	351 W	1 395 W	2 954 W	3 889 W	4 152 W
2200	371 W	1 395 W	2 954 W	3 889 W	4 152 W
2300	390 W	1 564 W	3 311 W	4 359 W	4 654 W
2400	410 W	1 564 W	3 311 W	4 359 W	4 654 W
2500	429 W	1 665 W	3 525 W	4 641 W	4 955 W
2600	449 W	1 732 W	3 668 W	4 829 W	5 155 W
2700	468 W	1 800 W	3 810 W	5 016 W	5 356 W
2800	488 W	1 901 W	4 024 W	5 298 W	5 657 W
2900	507 W	1 982 W	4 196 W	5 524 W	5 897 W
3000	527 W	1 982 W	4 196 W	5 524 W	5 897 W
3200	566 W	2 235 W	4 731 W	6 228 W	6 650 W
3400	605 W	2 319 W	4 909 W	6 463 W	6 900 W
3600	644 W	2 555 W	5 409 W	7 121 W	7 602 W
3800	682 W	2 639 W	5 587 W	7 356 W	7 853 W
4000	721 W	2 791 W	5 908 W	7 778 W	8 304 W
4200	760 W	2 973 W	6 293 W	8 286 W	8 846 W
4400	799 W	3 128 W	6 622 W	8 718 W	9 307 W
4600	838 W	3 310 W	7 007 W	9 225 W	9 849 W
4800	877 W	3 377 W	7 150 W	9 413 W	10 049 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	38 W	144 W	305 W	402 W	429 W
800	47 W	192 W	407 W	535 W	572 W
900	57 W	230 W	488 W	643 W	686 W
1000	66 W	327 W	692 W	910 W	972 W
1100	76 W	327 W	692 W	910 W	972 W
1200	85 W	384 W	814 W	1 071 W	1 144 W
1300	95 W	423 W	895 W	1 178 W	1 258 W
1400	104 W	471 W	997 W	1 312 W	1 401 W
1500	114 W	519 W	1 099 W	1 446 W	1 544 W
1600	123 W	565 W	1 196 W	1 575 W	1 681 W
1700	133 W	565 W	1 196 W	1 575 W	1 681 W
1800	142 W	653 W	1 383 W	1 821 W	1 944 W
1900	152 W	709 W	1 501 W	1 976 W	2 110 W
2000	161 W	757 W	1 603 W	2 110 W	2 253 W
2100	170 W	795 W	1 684 W	2 217 W	2 367 W
2200	180 W	795 W	1 684 W	2 217 W	2 367 W
2300	189 W	892 W	1 888 W	2 485 W	2 653 W
2400	198 W	892 W	1 888 W	2 485 W	2 653 W
2500	208 W	949 W	2 010 W	2 646 W	2 825 W
2600	217 W	987 W	2 091 W	2 753 W	2 939 W
2700	227 W	1 026 W	2 172 W	2 860 W	3 054 W
2800	236 W	1 084 W	2 294 W	3 020 W	3 225 W
2900	245 W	1 130 W	2 392 W	3 149 W	3 362 W
3000	255 W	1 130 W	2 392 W	3 149 W	3 362 W
3200	274 W	1 274 W	2 697 W	3 551 W	3 791 W
3400	293 W	1 322 W	2 799 W	3 685 W	3 934 W
3600	312 W	1 457 W	3 084 W	4 060 W	4 334 W
3800	330 W	1 505 W	3 185 W	4 194 W	4 477 W
4000	349 W	1 591 W	3 368 W	4 434 W	4 734 W
4200	368 W	1 695 W	3 588 W	4 724 W	5 043 W
4400	387 W	1 783 W	3 775 W	4 970 W	5 306 W
4600	406 W	1 887 W	3 995 W	5 259 W	5 615 W
4800	425 W	1 925 W	4 076 W	5 367 W	5 729 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	39	42
800	-	< 25	30	40	43
900	-	< 25	30	41	44
1000	-	< 25	31	41	45
1100	-	< 25	32	42	45
1200	-	< 25	32	42	46
1300	-	< 25	33	43	46
1400	-	< 25	33	43	47
1500	-	< 25	34	44	47
1600	-	< 25	34	44	48
1700	-	< 25	35	45	48
1800	-	< 25	35	45	48
1900	-	< 25	35	45	49
2000	-	< 25	36	46	49
2100	-	< 25	36	46	49
2200	-	< 25	36	46	50
2300	-	< 25	37	47	50
2400	-	< 25	37	47	50
2500	-	< 25	37	47	51
2600	-	< 25	38	48	51
2700	-	25	38	48	51
2800	-	25	38	48	51
2900	-	25	38	48	52
3000	-	25	38	48	52
3200	-	25	39	49	52
3400	-	25	39	49	53
3600	-	25	40	50	53
3800	-	25	40	50	53
4000	-	25	40	50	54
4200	-	25	41	51	54
4400	-	25	41	51	54
4600	-	25	41	51	55
4800	-	25	42	51	55

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0090 0300

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Low trench heater with a good heating output
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	90 mm
Width [W]	300 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

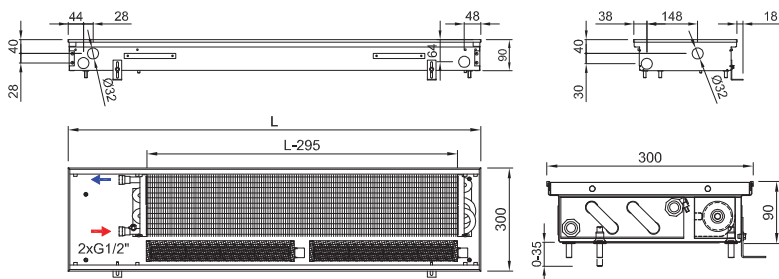
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

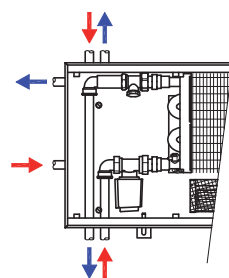
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

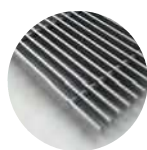


Accessories per order

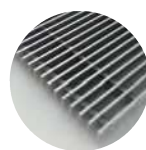


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



ⓘ Grilles → 6 ⓘ Ledges → 8 ⓘ Acoustic power → 13 ⓘ Accessories → 14 ⓘ Hydraulic parameters → 126 ⓘ Wiring → 129

Code example: FRT 0090 0300 2700 C 32 J3 R - 5

Trench heater **FRT** H=90 mm, W= 300 mm, L=2 700 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „32“ black anodized aluminium grille, linear, rigid, „J3“ peripheral ledge „J“, black anodized aluminium „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0090 0300

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	84 W	270 W	572 W	749 W	803 W
800	105 W	361 W	762 W	999 W	1 071 W
900	126 W	433 W	915 W	1 199 W	1 285 W
1000	147 W	613 W	1 296 W	1 698 W	1 820 W
1100	168 W	613 W	1 296 W	1 698 W	1 820 W
1200	189 W	721 W	1 525 W	1 998 W	2 141 W
1300	209 W	793 W	1 677 W	2 197 W	2 355 W
1400	230 W	883 W	1 868 W	2 447 W	2 623 W
1500	251 W	974 W	2 058 W	2 697 W	2 891 W
1600	272 W	1 060 W	2 241 W	2 937 W	3 148 W
1700	293 W	1 060 W	2 241 W	2 937 W	3 148 W
1800	314 W	1 226 W	2 592 W	3 396 W	3 640 W
1900	334 W	1 331 W	2 813 W	3 686 W	3 950 W
2000	355 W	1 421 W	3 004 W	3 935 W	4 218 W
2100	376 W	1 493 W	3 156 W	4 135 W	4 432 W
2200	397 W	1 493 W	3 156 W	4 135 W	4 432 W
2300	418 W	1 673 W	3 537 W	4 635 W	4 968 W
2400	439 W	1 673 W	3 537 W	4 635 W	4 968 W
2500	459 W	1 781 W	3 766 W	4 934 W	5 289 W
2600	480 W	1 853 W	3 918 W	5 134 W	5 503 W
2700	501 W	1 926 W	4 071 W	5 334 W	5 717 W
2800	522 W	2 034 W	4 300 W	5 633 W	6 038 W
2900	543 W	2 120 W	4 483 W	5 873 W	6 295 W
3000	564 W	2 120 W	4 483 W	5 873 W	6 295 W
3200	605 W	2 391 W	5 054 W	6 622 W	7 098 W
3400	647 W	2 481 W	5 245 W	6 872 W	7 366 W
3600	689 W	2 733 W	5 779 W	7 571 W	8 115 W
3800	730 W	2 823 W	5 969 W	7 821 W	8 383 W
4000	772 W	2 986 W	6 312 W	8 270 W	8 864 W
4200	814 W	3 180 W	6 724 W	8 810 W	9 443 W
4400	855 W	3 346 W	7 075 W	9 269 W	9 935 W
4600	897 W	3 541 W	7 486 W	9 808 W	10 513 W
4800	939 W	3 613 W	7 639 W	10 008 W	10 727 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	41 W	154 W	326 W	427 W	458 W
800	51 W	206 W	434 W	570 W	611 W
900	61 W	247 W	522 W	684 W	733 W
1000	71 W	349 W	739 W	968 W	1 038 W
1100	81 W	349 W	739 W	968 W	1 038 W
1200	92 W	411 W	869 W	1 139 W	1 221 W
1300	101 W	452 W	956 W	1 253 W	1 343 W
1400	111 W	503 W	1 065 W	1 395 W	1 495 W
1500	122 W	555 W	1 173 W	1 538 W	1 648 W
1600	132 W	604 W	1 278 W	1 674 W	1 795 W
1700	142 W	604 W	1 278 W	1 674 W	1 795 W
1800	152 W	699 W	1 478 W	1 936 W	2 075 W
1900	162 W	759 W	1 604 W	2 101 W	2 252 W
2000	172 W	810 W	1 713 W	2 243 W	2 405 W
2100	182 W	851 W	1 799 W	2 357 W	2 527 W
2200	192 W	851 W	1 799 W	2 357 W	2 527 W
2300	202 W	954 W	2 017 W	2 643 W	2 832 W
2400	213 W	954 W	2 017 W	2 643 W	2 832 W
2500	222 W	1 015 W	2 147 W	2 813 W	3 015 W
2600	232 W	1 056 W	2 234 W	2 927 W	3 137 W
2700	243 W	1 098 W	2 321 W	3 041 W	3 259 W
2800	253 W	1 160 W	2 452 W	3 211 W	3 442 W
2900	263 W	1 209 W	2 556 W	3 348 W	3 589 W
3000	273 W	1 209 W	2 556 W	3 348 W	3 589 W
3200	293 W	1 363 W	2 881 W	3 775 W	4 047 W
3400	313 W	1 414 W	2 990 W	3 918 W	4 200 W
3600	334 W	1 558 W	3 295 W	4 316 W	4 627 W
3800	353 W	1 609 W	3 403 W	4 459 W	4 779 W
4000	374 W	1 702 W	3 599 W	4 715 W	5 054 W
4200	394 W	1 813 W	3 833 W	5 023 W	5 384 W
4400	414 W	1 908 W	4 034 W	5 284 W	5 664 W
4600	434 W	2 019 W	4 268 W	5 592 W	5 994 W
4800	455 W	2 060 W	4 355 W	5 706 W	6 116 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	39	42
800	-	< 25	30	40	43
900	-	< 25	30	41	44
1000	-	< 25	31	41	45
1100	-	< 25	32	42	45
1200	-	< 25	32	42	46
1300	-	< 25	33	43	46
1400	-	< 25	33	43	47
1500	-	< 25	34	44	47
1600	-	< 25	34	44	48
1700	-	< 25	35	45	48
1800	-	< 25	35	45	48
1900	-	< 25	35	45	49
2000	-	< 25	36	46	49
2100	-	< 25	36	46	49
2200	-	< 25	36	46	50
2300	-	< 25	37	47	50
2400	-	< 25	37	47	50
2500	-	< 25	37	47	51
2600	-	< 25	38	48	51
2700	-	25	38	48	51
2800	-	25	38	48	51
2900	-	25	38	48	52
3000	-	25	38	48	52
3200	-	25	39	49	52
3400	-	25	39	49	53
3600	-	25	40	50	53
3800	-	25	40	50	53
4000	-	25	40	50	54
4200	-	25	41	51	54
4400	-	25	41	51	54
4600	-	25	41	51	55
4800	-	25	42	51	55

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0090 0425

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	90 mm
Width [W]	425 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

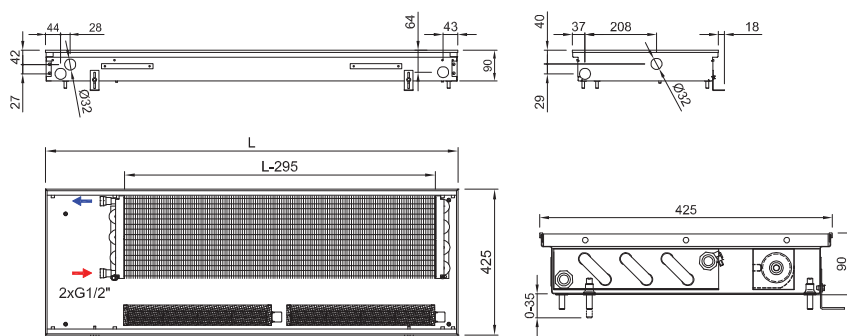
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

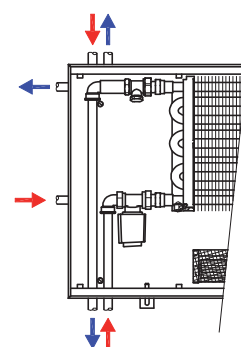
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



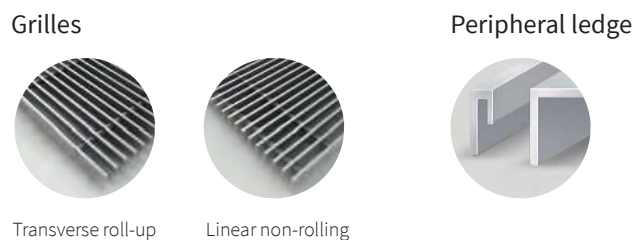
Connection to heating system



Accessories per order



Variants



🔊 Grilles → 6 📏 Ledges → 8 🔊 Acoustic power → 13 🛠️ Accessories → 14 📏 Hydraulic parameters → 126 📄 Wiring → 129

Code example: FRT 0090 0425 4400 C 64 L2 L - 5

Trench heater **FRT** H=90 mm, W= 425 mm, L=4 400 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „64“ stained oak grille, transverse, roll-up, „L2“ peripheral ledge, „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0090 0425

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	90 W	289 W	626 W	839 W	871 W
800	113 W	386 W	835 W	1 119 W	1 162 W
900	135 W	463 W	1 002 W	1 343 W	1 394 W
1000	157 W	656 W	1 420 W	1 903 W	1 975 W
1100	179 W	656 W	1 420 W	1 903 W	1 975 W
1200	202 W	772 W	1 670 W	2 238 W	2 323 W
1300	224 W	849 W	1 837 W	2 462 W	2 556 W
1400	246 W	945 W	2 046 W	2 742 W	2 846 W
1500	269 W	1 042 W	2 255 W	3 022 W	3 137 W
1600	291 W	1 134 W	2 455 W	3 290 W	3 415 W
1700	313 W	1 134 W	2 455 W	3 290 W	3 415 W
1800	335 W	1 312 W	2 839 W	3 805 W	3 950 W
1900	358 W	1 424 W	3 081 W	4 130 W	4 287 W
2000	380 W	1 520 W	3 290 W	4 410 W	4 577 W
2100	402 W	1 597 W	3 457 W	4 633 W	4 809 W
2200	425 W	1 597 W	3 457 W	4 633 W	4 809 W
2300	447 W	1 790 W	3 874 W	5 193 W	5 390 W
2400	469 W	1 790 W	3 874 W	5 193 W	5 390 W
2500	491 W	1 906 W	4 125 W	5 529 W	5 739 W
2600	514 W	1 983 W	4 292 W	5 753 W	5 971 W
2700	536 W	2 060 W	4 459 W	5 976 W	6 203 W
2800	558 W	2 176 W	4 709 W	6 312 W	6 552 W
2900	581 W	2 269 W	4 910 W	6 581 W	6 831 W
3000	603 W	2 269 W	4 910 W	6 581 W	6 831 W
3200	647 W	2 558 W	5 536 W	7 420 W	7 702 W
3400	692 W	2 655 W	5 745 W	7 700 W	7 992 W
3600	737 W	2 925 W	6 329 W	8 483 W	8 805 W
3800	781 W	3 021 W	6 538 W	8 763 W	9 096 W
4000	826 W	3 195 W	6 914 W	9 267 W	9 619 W
4200	870 W	3 403 W	7 365 W	9 871 W	10 246 W
4400	915 W	3 581 W	7 749 W	10 386 W	10 780 W
4600	959 W	3 789 W	8 200 W	10 990 W	11 408 W
4800	1 004 W	3 866 W	8 367 W	11 214 W	11 604 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	44 W	165 W	357 W	478 W	497 W
800	55 W	220 W	476 W	638 W	662 W
900	65 W	264 W	571 W	766 W	795 W
1000	76 W	374 W	810 W	1 085 W	1 126 W
1100	87 W	374 W	810 W	1 085 W	1 126 W
1200	98 W	440 W	952 W	1 276 W	1 324 W
1300	108 W	484 W	1 047 W	1 404 W	1 457 W
1400	119 W	539 W	1 166 W	1 563 W	1 623 W
1500	130 W	594 W	1 286 W	1 723 W	1 788 W
1600	141 W	647 W	1 400 W	1 876 W	1 947 W
1700	152 W	647 W	1 400 W	1 876 W	1 947 W
1800	162 W	748 W	1 619 W	2 169 W	2 252 W
1900	173 W	812 W	1 757 W	2 355 W	2 444 W
2000	184 W	867 W	1 876 W	2 514 W	2 609 W
2100	195 W	910 W	1 971 W	2 641 W	2 742 W
2200	206 W	910 W	1 971 W	2 641 W	2 742 W
2300	216 W	1 021 W	2 209 W	2 961 W	3 073 W
2400	227 W	1 021 W	2 209 W	2 961 W	3 073 W
2500	238 W	1 087 W	2 352 W	3 152 W	3 272 W
2600	249 W	1 131 W	2 447 W	3 280 W	3 404 W
2700	260 W	1 174 W	2 542 W	3 407 W	3 536 W
2800	270 W	1 241 W	2 685 W	3 599 W	3 735 W
2900	281 W	1 294 W	2 799 W	3 752 W	3 894 W
3000	292 W	1 294 W	2 799 W	3 752 W	3 894 W
3200	313 W	1 458 W	3 156 W	4 230 W	4 391 W
3400	335 W	1 514 W	3 275 W	4 390 W	4 556 W
3600	357 W	1 668 W	3 608 W	4 836 W	5 020 W
3800	378 W	1 722 W	3 727 W	4 996 W	5 186 W
4000	400 W	1 822 W	3 942 W	5 283 W	5 484 W
4200	421 W	1 940 W	4 199 W	5 628 W	5 841 W
4400	443 W	2 042 W	4 418 W	5 921 W	6 146 W
4600	464 W	2 160 W	4 675 W	6 266 W	6 504 W
4800	486 W	2 204 W	4 770 W	6 393 W	6 636 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	28	39	42
800	-	< 25	29	40	43
900	-	25	30	40	44
1000	-	26	30	41	44
1100	-	26	31	41	45
1200	-	26	31	42	45
1300	-	27	32	42	46
1400	-	27	32	43	46
1500	-	28	33	43	47
1600	-	28	33	44	47
1700	-	28	33	44	47
1800	-	29	34	44	48
1900	-	29	34	45	48
2000	-	29	34	45	48
2100	-	29	35	45	49
2200	-	30	35	45	49
2300	-	30	35	46	49
2400	-	30	35	46	49
2500	-	30	36	46	50
2600	-	30	36	46	50
2700	-	31	36	47	50
2800	-	31	36	47	50
2900	-	31	36	47	51
3000	-	31	37	47	51
3200	-	32	37	48	51
3400	-	32	37	48	51
3600	-	32	38	48	52
3800	-	32	38	49	52
4000	-	33	38	49	52
4200	-	33	38	49	53
4400	-	33	39	49	53
4600	-	33	39	50	53
4800	-	34	39	50	53



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0110 0175

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Narrow trench heater suitable for a standard floor
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	110 mm
Width [W]	175 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

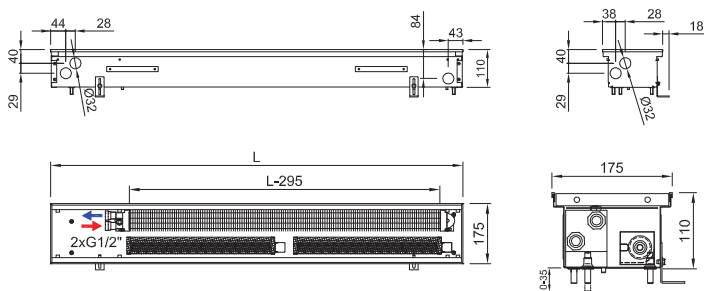
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

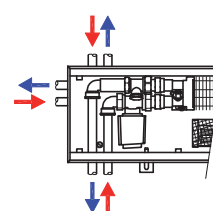
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system



Accessories per order



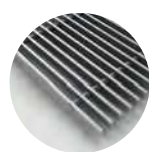
Room thermostat

Power supply

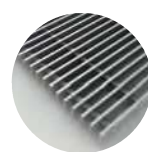
Lockshield valve

Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0110 0175 1400 C 63 L1 L - 5

Trench heater **FRT** H = **110** mm, W = **175** mm, L = **1 400** mm, „**C**“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „**63**“ natural oak grille, transverse, roll-up, „**L1**“ peripheral ledge „**L**“ with an overlap, natur anodized aluminium, „**L**“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room) „**5**“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0110 0175

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	26 W	89 W	197 W	255 W	306 W
800	32 W	118 W	262 W	340 W	408 W
900	38 W	142 W	315 W	409 W	490 W
1000	44 W	201 W	446 W	579 W	694 W
1100	51 W	201 W	446 W	579 W	694 W
1200	57 W	236 W	525 W	681 W	817 W
1300	63 W	260 W	577 W	749 W	899 W
1400	70 W	289 W	643 W	834 W	1 001 W
1500	76 W	319 W	708 W	919 W	1 103 W
1600	82 W	349 W	775 W	1 006 W	1 207 W
1700	89 W	349 W	775 W	1 006 W	1 207 W
1800	95 W	402 W	892 W	1 157 W	1 389 W
1900	101 W	438 W	972 W	1 261 W	1 513 W
2000	107 W	467 W	1 037 W	1 346 W	1 615 W
2100	114 W	491 W	1 090 W	1 415 W	1 697 W
2200	120 W	491 W	1 090 W	1 415 W	1 697 W
2300	126 W	550 W	1 221 W	1 585 W	1 901 W
2400	133 W	550 W	1 221 W	1 585 W	1 901 W
2500	139 W	585 W	1 300 W	1 687 W	2 024 W
2600	145 W	609 W	1 352 W	1 755 W	2 106 W
2700	152 W	632 W	1 404 W	1 823 W	2 187 W
2800	158 W	668 W	1 483 W	1 925 W	2 310 W
2900	164 W	698 W	1 550 W	2 012 W	2 414 W
3000	170 W	698 W	1 550 W	2 012 W	2 414 W
3200	183 W	787 W	1 747 W	2 267 W	2 720 W
3400	196 W	816 W	1 812 W	2 352 W	2 822 W
3600	208 W	899 W	1 996 W	2 591 W	3 108 W
3800	221 W	928 W	2 061 W	2 676 W	3 210 W
4000	233 W	981 W	2 179 W	2 829 W	3 394 W
4200	246 W	1 047 W	2 325 W	3 018 W	3 621 W
4400	259 W	1 100 W	2 442 W	3 169 W	3 803 W
4600	271 W	1 165 W	2 587 W	3 358 W	4 029 W
4800	284 W	1 189 W	2 640 W	3 427 W	4 111 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	13 W	51 W	112 W	145 W	174 W
800	15 W	67 W	149 W	194 W	233 W
900	18 W	81 W	180 W	233 W	279 W
1000	21 W	115 W	254 W	330 W	396 W
1100	25 W	115 W	254 W	330 W	396 W
1200	28 W	135 W	299 W	388 W	466 W
1300	31 W	148 W	329 W	427 W	513 W
1400	34 W	165 W	367 W	475 W	571 W
1500	37 W	182 W	404 W	524 W	629 W
1600	40 W	199 W	442 W	574 W	688 W
1700	43 W	199 W	442 W	574 W	688 W
1800	46 W	229 W	509 W	660 W	792 W
1900	49 W	250 W	554 W	719 W	863 W
2000	52 W	266 W	591 W	767 W	921 W
2100	55 W	280 W	621 W	807 W	967 W
2200	58 W	280 W	621 W	807 W	967 W
2300	61 W	314 W	696 W	904 W	1 084 W
2400	64 W	314 W	696 W	904 W	1 084 W
2500	67 W	334 W	741 W	962 W	1 154 W
2600	70 W	347 W	771 W	1 001 W	1 201 W
2700	74 W	360 W	800 W	1 039 W	1 247 W
2800	76 W	381 W	845 W	1 097 W	1 317 W
2900	79 W	398 W	884 W	1 147 W	1 376 W
3000	82 W	398 W	884 W	1 147 W	1 376 W
3200	89 W	449 W	996 W	1 292 W	1 551 W
3400	95 W	465 W	1 033 W	1 341 W	1 609 W
3600	101 W	513 W	1 138 W	1 477 W	1 772 W
3800	107 W	529 W	1 175 W	1 526 W	1 830 W
4000	113 W	559 W	1 242 W	1 613 W	1 935 W
4200	119 W	597 W	1 326 W	1 721 W	2 064 W
4400	125 W	627 W	1 392 W	1 807 W	2 168 W
4600	131 W	664 W	1 475 W	1 914 W	2 297 W
4800	137 W	678 W	1 505 W	1 954 W	2 344 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	< 25	30	35
800	-	< 25	25	30	35
900	-	< 25	25	31	36
1000	-	< 25	26	31	36
1100	-	< 25	26	31	37
1200	-	< 25	26	32	37
1300	-	< 25	26	32	37
1400	-	< 25	27	32	38
1500	-	< 25	27	32	38
1600	-	< 25	27	33	38
1700	-	< 25	27	33	38
1800	-	< 25	28	33	39
1900	-	< 25	28	33	39
2000	-	< 25	28	33	39
2100	-	< 25	28	34	39
2200	-	< 25	28	34	39
2300	-	< 25	28	34	39
2400	-	< 25	29	34	40
2500	-	< 25	29	34	40
2600	-	< 25	29	34	40
2700	-	< 25	29	35	40
2800	-	< 25	29	35	40
2900	-	< 25	29	35	40
3000	-	< 25	29	35	40
3200	-	25	30	35	41
3400	-	25	30	35	41
3600	-	25	30	36	41
3800	-	25	30	36	41
4000	-	25	30	36	42
4200	-	25	31	36	42
4400	-	26	31	36	42
4600	-	26	31	36	42
4800	-	26	31	37	42



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	2 W	2 W
800	1	1 W	1 W	2 W	2 W
900	1	1 W	1 W	2 W	2 W
1000	1	2 W	2 W	2 W	3 W
1100	1	2 W	2 W	2 W	3 W
1200	2	2 W	3 W	3 W	4 W
1300	2	2 W	3 W	3 W	4 W
1400	2	3 W	3 W	4 W	5 W
1500	2	3 W	3 W	4 W	5 W
1600	1	3 W	3 W	4 W	5 W
1700	2	3 W	3 W	4 W	5 W
1800	2	3 W	3 W	4 W	5 W
1900	2	3 W	4 W	5 W	6 W
2000	2	4 W	5 W	6 W	7 W
2100	2	4 W	5 W	6 W	7 W
2200	2	4 W	5 W	6 W	7 W
2300	2	4 W	5 W	6 W	7 W
2400	2	4 W	5 W	6 W	7 W
2500	3	5 W	6 W	7 W	9 W
2600	3	5 W	6 W	7 W	9 W
2700	3	5 W	6 W	7 W	9 W
2800	3	5 W	6 W	7 W	9 W
2900	2	5 W	6 W	7 W	9 W
3000	3	5 W	6 W	7 W	9 W
3200	3	6 W	8 W	9 W	11 W
3400	3	6 W	8 W	9 W	11 W
3600	3	7 W	8 W	10 W	12 W
3800	4	7 W	9 W	11 W	13 W
4000	4	7 W	9 W	11 W	13 W
4200	3	7 W	9 W	11 W	13 W
4400	4	8 W	10 W	12 W	14 W
4600	4	8 W	10 W	12 W	15 W
4800	4	8 W	10 W	12 W	15 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0110 0200

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Narrow trench heater suitable for a standard floor
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	110 mm
Width [W]	200 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

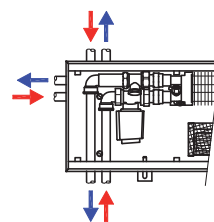
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

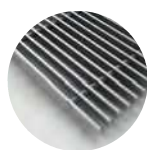


Accessories per order

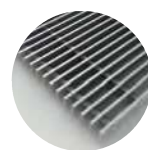


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



- ① Grilles → 6
 ② Ledges → 8
 ③ Acoustic power → 13
 ④ Accessories → 14
 ⑤ Hydraulic parameters → 126
 ⑥ Wiring → 129

Code example: FRT 0110 0200 1900 C 52 J1 R - 5

Trench heater **FRT** H = 110 mm, W = 200 mm, L = 1 900 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „52“ stainless grille, transverse, roll-up, „J1“ peripheral ledge „J“, natur anodized aluminium, „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0110 0200

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	49 W	171 W	376 W	500 W	537 W
800	61 W	228 W	502 W	666 W	716 W
900	73 W	273 W	602 W	800 W	860 W
1000	85 W	387 W	853 W	1 133 W	1 218 W
1100	98 W	387 W	853 W	1 133 W	1 218 W
1200	110 W	456 W	1 003 W	1 333 W	1 433 W
1300	122 W	501 W	1 104 W	1 466 W	1 576 W
1400	134 W	558 W	1 229 W	1 633 W	1 755 W
1500	146 W	615 W	1 355 W	1 799 W	1 934 W
1600	158 W	670 W	1 475 W	1 959 W	2 106 W
1700	170 W	670 W	1 475 W	1 959 W	2 106 W
1800	182 W	775 W	1 706 W	2 266 W	2 436 W
1900	194 W	841 W	1 851 W	2 459 W	2 643 W
2000	207 W	898 W	1 977 W	2 625 W	2 822 W
2100	219 W	943 W	2 077 W	2 759 W	2 966 W
2200	231 W	943 W	2 077 W	2 759 W	2 966 W
2300	243 W	1 057 W	2 328 W	3 092 W	3 324 W
2400	255 W	1 057 W	2 328 W	3 092 W	3 324 W
2500	267 W	1 126 W	2 478 W	3 292 W	3 539 W
2600	279 W	1 171 W	2 579 W	3 425 W	3 682 W
2700	291 W	1 217 W	2 679 W	3 558 W	3 825 W
2800	303 W	1 285 W	2 830 W	3 758 W	4 040 W
2900	316 W	1 340 W	2 950 W	3 918 W	4 212 W
3000	328 W	1 340 W	2 950 W	3 918 W	4 212 W
3200	352 W	1 511 W	3 326 W	4 418 W	4 749 W
3400	376 W	1 568 W	3 452 W	4 584 W	4 928 W
3600	400 W	1 727 W	3 803 W	5 051 W	5 430 W
3800	425 W	1 784 W	3 928 W	5 217 W	5 609 W
4000	449 W	1 887 W	4 154 W	5 517 W	5 931 W
4200	473 W	2 010 W	4 425 W	5 877 W	6 318 W
4400	497 W	2 115 W	4 656 W	6 184 W	6 648 W
4600	521 W	2 238 W	4 927 W	6 543 W	7 034 W
4800	546 W	2 283 W	5 027 W	6 677 W	7 178 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	24 W	97 W	214 W	285 W	306 W
800	30 W	130 W	286 W	380 W	408 W
900	35 W	156 W	343 W	456 W	490 W
1000	41 W	221 W	486 W	646 W	694 W
1100	47 W	221 W	486 W	646 W	694 W
1200	53 W	260 W	572 W	760 W	817 W
1300	59 W	286 W	629 W	836 W	899 W
1400	65 W	318 W	701 W	931 W	1 001 W
1500	71 W	351 W	773 W	1 026 W	1 103 W
1600	76 W	382 W	841 W	1 117 W	1 201 W
1700	82 W	382 W	841 W	1 117 W	1 201 W
1800	88 W	442 W	973 W	1 292 W	1 389 W
1900	94 W	479 W	1 055 W	1 402 W	1 507 W
2000	100 W	512 W	1 127 W	1 497 W	1 609 W
2100	106 W	538 W	1 184 W	1 573 W	1 691 W
2200	112 W	538 W	1 184 W	1 573 W	1 691 W
2300	118 W	603 W	1 327 W	1 763 W	1 895 W
2400	123 W	603 W	1 327 W	1 763 W	1 895 W
2500	129 W	642 W	1 413 W	1 877 W	2 018 W
2600	135 W	668 W	1 470 W	1 953 W	2 099 W
2700	141 W	694 W	1 527 W	2 028 W	2 181 W
2800	147 W	733 W	1 613 W	2 143 W	2 303 W
2900	153 W	764 W	1 682 W	2 234 W	2 401 W
3000	159 W	764 W	1 682 W	2 234 W	2 401 W
3200	170 W	861 W	1 896 W	2 519 W	2 708 W
3400	182 W	894 W	1 968 W	2 613 W	2 810 W
3600	194 W	985 W	2 168 W	2 880 W	3 096 W
3800	206 W	1 017 W	2 239 W	2 974 W	3 198 W
4000	217 W	1 076 W	2 368 W	3 145 W	3 381 W
4200	229 W	1 146 W	2 523 W	3 351 W	3 602 W
4400	241 W	1 206 W	2 654 W	3 526 W	3 790 W
4600	252 W	1 276 W	2 809 W	3 730 W	4 010 W
4800	264 W	1 302 W	2 866 W	3 807 W	4 092 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	39	42
800	-	< 25	30	40	43
900	-	< 25	30	41	44
1000	-	< 25	31	41	45
1100	-	< 25	32	42	45
1200	-	< 25	32	42	46
1300	-	< 25	33	43	46
1400	-	< 25	33	43	47
1500	-	< 25	34	44	47
1600	-	< 25	34	44	48
1700	-	< 25	35	45	48
1800	-	< 25	35	45	48
1900	-	< 25	35	45	49
2000	-	< 25	36	46	49
2100	-	< 25	36	46	49
2200	-	< 25	36	46	50
2300	-	< 25	37	47	50
2400	-	< 25	37	47	50
2500	-	< 25	37	47	51
2600	-	< 25	38	48	51
2700	-	25	38	48	51
2800	-	25	38	48	51
2900	-	25	38	48	52
3000	-	25	38	48	52
3200	-	25	39	49	52
3400	-	25	39	49	53
3600	-	25	40	50	53
3800	-	25	40	50	53
4000	-	25	40	50	54
4200	-	25	41	51	54
4400	-	25	41	51	54
4600	-	25	41	51	55
4800	-	25	42	51	55

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0110 0250

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Narrow trench heater suitable for a standard floor
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	110 mm
Width [W]	250 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

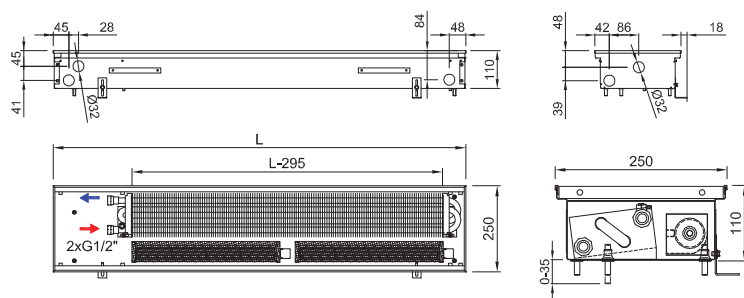
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

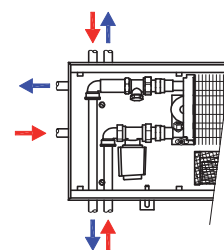
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



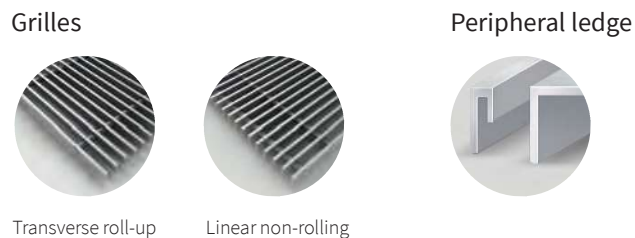
Connection to heating system



Accessories per order



Variants



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0110 0250 1500 C 62 L2 L - 5

Trench heater **FRT** H = **110** mm, W = **250** mm, L = **1 500** mm, „**C**“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „**62**“ stained beech grille, transverse, roll-up, „**L2**“ peripheral ledge „**L**“ with an overlap, bronze anodized aluminium, „**L**“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room) „**5**“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0110 0250

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	108 W	288 W	594 W	790 W	851 W
800	134 W	384 W	792 W	1 053 W	1 135 W
900	161 W	461 W	950 W	1 264 W	1 362 W
1000	188 W	653 W	1 346 W	1 790 W	1 930 W
1100	214 W	653 W	1 346 W	1 790 W	1 930 W
1200	241 W	768 W	1 584 W	2 106 W	2 271 W
1300	268 W	845 W	1 742 W	2 317 W	2 498 W
1400	294 W	941 W	1 940 W	2 580 W	2 781 W
1500	321 W	1 037 W	2 138 W	2 844 W	3 065 W
1600	347 W	1 129 W	2 328 W	3 096 W	3 338 W
1700	374 W	1 129 W	2 328 W	3 096 W	3 338 W
1800	401 W	1 306 W	2 692 W	3 581 W	3 860 W
1900	427 W	1 417 W	2 922 W	3 886 W	4 189 W
2000	454 W	1 513 W	3 120 W	4 150 W	4 473 W
2100	481 W	1 590 W	3 278 W	4 360 W	4 700 W
2200	507 W	1 590 W	3 278 W	4 360 W	4 700 W
2300	534 W	1 782 W	3 674 W	4 887 W	5 268 W
2400	560 W	1 782 W	3 674 W	4 887 W	5 268 W
2500	587 W	1 898 W	3 911 W	5 203 W	5 608 W
2600	614 W	1 974 W	4 070 W	5 413 W	5 835 W
2700	640 W	2 051 W	4 228 W	5 624 W	6 062 W
2800	667 W	2 166 W	4 466 W	5 940 W	6 403 W
2900	693 W	2 259 W	4 656 W	6 193 W	6 676 W
3000	720 W	2 259 W	4 656 W	6 193 W	6 676 W
3200	773 W	2 547 W	5 249 W	6 983 W	7 527 W
3400	827 W	2 643 W	5 447 W	7 246 W	7 811 W
3600	880 W	2 912 W	6 002 W	7 983 W	8 606 W
3800	933 W	3 008 W	6 200 W	8 247 W	8 889 W
4000	986 W	3 180 W	6 556 W	8 721 W	9 400 W
4200	1 040 W	3 388 W	6 983 W	9 289 W	10 013 W
4400	1 093 W	3 565 W	7 348 W	9 774 W	10 536 W
4600	1 146 W	3 772 W	7 775 W	10 342 W	11 149 W
4800	1 199 W	3 849 W	7 933 W	10 553 W	11 376 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	39	42
800	-	< 25	30	40	43
900	-	< 25	30	41	44
1000	-	< 25	31	41	45
1100	-	< 25	32	42	45
1200	-	< 25	32	42	46
1300	-	< 25	33	43	46
1400	-	< 25	33	43	47
1500	-	< 25	34	44	47
1600	-	< 25	34	44	48
1700	-	< 25	35	45	48
1800	-	< 25	35	45	48
1900	-	< 25	35	45	49
2000	-	< 25	36	46	49
2100	-	< 25	36	46	49
2200	-	< 25	36	46	50
2300	-	< 25	37	47	50
2400	-	< 25	37	47	50
2500	-	< 25	37	47	51
2600	-	< 25	38	48	51
2700	-	25	38	48	51
2800	-	25	38	48	51
2900	-	25	38	48	52
3000	-	25	38	48	52
3200	-	25	39	49	52
3400	-	25	39	49	53
3600	-	25	40	50	53
3800	-	25	40	50	53
4000	-	25	40	50	54
4200	-	25	41	51	54
4400	-	25	41	51	54
4600	-	25	41	51	55
4800	-	25	42	51	55

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	52 W	164 W	339 W	450 W	485 W
800	65 W	219 W	452 W	600 W	647 W
900	78 W	263 W	542 W	720 W	777 W
1000	91 W	372 W	767 W	1 021 W	1 100 W
1100	104 W	372 W	767 W	1 021 W	1 100 W
1200	117 W	438 W	903 W	1 201 W	1 295 W
1300	130 W	482 W	993 W	1 321 W	1 424 W
1400	142 W	536 W	1 106 W	1 471 W	1 586 W
1500	155 W	591 W	1 219 W	1 621 W	1 747 W
1600	168 W	644 W	1 327 W	1 765 W	1 903 W
1700	181 W	644 W	1 327 W	1 765 W	1 903 W
1800	194 W	745 W	1 535 W	2 042 W	2 201 W
1900	207 W	808 W	1 666 W	2 215 W	2 388 W
2000	220 W	863 W	1 779 W	2 366 W	2 550 W
2100	233 W	906 W	1 869 W	2 486 W	2 680 W
2200	245 W	906 W	1 869 W	2 486 W	2 680 W
2300	259 W	1 016 W	2 095 W	2 786 W	3 003 W
2400	271 W	1 016 W	2 095 W	2 786 W	3 003 W
2500	284 W	1 082 W	2 230 W	2 966 W	3 197 W
2600	297 W	1 125 W	2 320 W	3 086 W	3 327 W
2700	310 W	1 169 W	2 410 W	3 206 W	3 456 W
2800	323 W	1 235 W	2 546 W	3 387 W	3 650 W
2900	336 W	1 288 W	2 654 W	3 531 W	3 806 W
3000	349 W	1 288 W	2 654 W	3 531 W	3 806 W
3200	374 W	1 452 W	2 993 W	3 981 W	4 291 W
3400	400 W	1 507 W	3 105 W	4 131 W	4 453 W
3600	426 W	1 660 W	3 422 W	4 551 W	4 906 W
3800	452 W	1 715 W	3 535 W	4 702 W	5 068 W
4000	477 W	1 813 W	3 738 W	4 972 W	5 359 W
4200	504 W	1 932 W	3 981 W	5 296 W	5 709 W
4400	529 W	2 032 W	4 189 W	5 572 W	6 007 W
4600	555 W	2 150 W	4 433 W	5 896 W	6 356 W
4800	580 W	2 194 W	4 523 W	6 016 W	6 486 W



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0110 0300

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Universal trench heater suitable for a standard floor
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	110 mm
Width [W]	300 mm
Length [L]	700-4800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

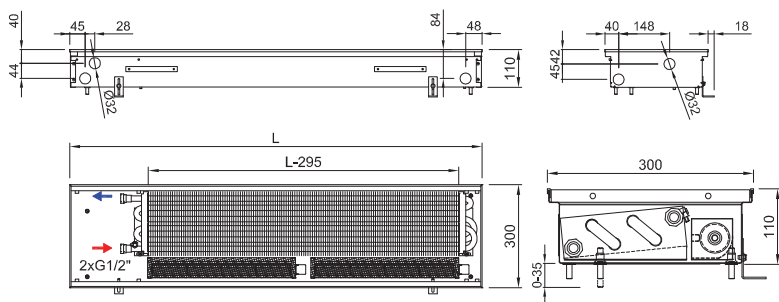
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

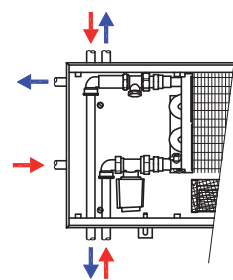
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



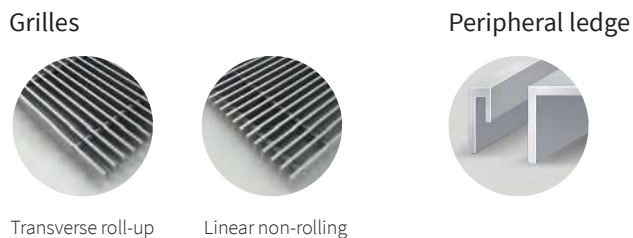
Connection to heating system



Accessories per order



Variants



ⓘ Grilles → 6 ⓘ Ledges → 8 ⓘ Acoustic power → 13 ⓘ Accessories → 14 ⓘ Hydraulic parameters → 126 ⓘ Wiring → 129

Code example: FRT 0110 0300 2700 C 32 J3 R - 5

Trench heater **FRT** H = 110 mm, W = 300 mm, L = 2 700 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „32“ black anodized aluminium grille, linear, rigid, „J3“ peripheral ledge „J“, black anodized aluminium „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0110 0300

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	115 W	307 W	637 W	864 W	933 W
800	143 W	409 W	849 W	1 152 W	1 244 W
900	171 W	491 W	1 019 W	1 382 W	1 493 W
1000	200 W	695 W	1 443 W	1 958 W	2 115 W
1100	228 W	695 W	1 443 W	1 958 W	2 115 W
1200	257 W	818 W	1 698 W	2 304 W	2 488 W
1300	285 W	899 W	1 867 W	2 534 W	2 737 W
1400	313 W	1 002 W	2 080 W	2 822 W	3 048 W
1500	342 W	1 104 W	2 292 W	3 110 W	3 359 W
1600	370 W	1 202 W	2 496 W	3 387 W	3 658 W
1700	398 W	1 202 W	2 496 W	3 387 W	3 658 W
1800	427 W	1 390 W	2 886 W	3 916 W	4 230 W
1900	455 W	1 509 W	3 132 W	4 251 W	4 591 W
2000	483 W	1 611 W	3 344 W	4 539 W	4 902 W
2100	512 W	1 693 W	3 514 W	4 769 W	5 151 W
2200	540 W	1 693 W	3 514 W	4 769 W	5 151 W
2300	568 W	1 897 W	3 939 W	5 345 W	5 773 W
2400	597 W	1 897 W	3 939 W	5 345 W	5 773 W
2500	625 W	2 020 W	4 193 W	5 690 W	6 146 W
2600	653 W	2 101 W	4 363 W	5 921 W	6 395 W
2700	682 W	2 183 W	4 533 W	6 151 W	6 644 W
2800	710 W	2 306 W	4 787 W	6 497 W	7 017 W
2900	738 W	2 404 W	4 991 W	6 773 W	7 315 W
3000	767 W	2 404 W	4 991 W	6 773 W	7 315 W
3200	823 W	2 711 W	5 628 W	7 637 W	8 249 W
3400	880 W	2 813 W	5 840 W	7 925 W	8 560 W
3600	937 W	3 099 W	6 434 W	8 731 W	9 430 W
3800	994 W	3 201 W	6 646 W	9 019 W	9 741 W
4000	1 050 W	3 385 W	7 028 W	9 538 W	10 301 W
4200	1 107 W	3 606 W	7 487 W	10 160 W	10 973 W
4400	1 164 W	3 794 W	7 877 W	10 690 W	11 545 W
4600	1 220 W	4 015 W	8 335 W	11 312 W	12 217 W
4800	1 277 W	4 096 W	8 505 W	11 542 W	12 466 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	56 W	175 W	363 W	493 W	532 W
800	69 W	233 W	484 W	657 W	709 W
900	83 W	280 W	581 W	788 W	851 W
1000	97 W	396 W	823 W	1 116 W	1 206 W
1100	110 W	396 W	823 W	1 116 W	1 206 W
1200	124 W	466 W	968 W	1 314 W	1 418 W
1300	138 W	513 W	1 064 W	1 445 W	1 560 W
1400	152 W	571 W	1 186 W	1 609 W	1 738 W
1500	166 W	629 W	1 307 W	1 773 W	1 915 W
1600	179 W	685 W	1 423 W	1 931 W	2 085 W
1700	193 W	685 W	1 423 W	1 931 W	2 085 W
1800	207 W	792 W	1 645 W	2 233 W	2 412 W
1900	220 W	860 W	1 786 W	2 424 W	2 617 W
2000	234 W	918 W	1 906 W	2 588 W	2 795 W
2100	248 W	965 W	2 003 W	2 719 W	2 937 W
2200	261 W	965 W	2 003 W	2 719 W	2 937 W
2300	275 W	1 082 W	2 246 W	3 047 W	3 291 W
2400	289 W	1 082 W	2 246 W	3 047 W	3 291 W
2500	303 W	1 152 W	2 391 W	3 244 W	3 504 W
2600	316 W	1 198 W	2 487 W	3 376 W	3 646 W
2700	330 W	1 245 W	2 584 W	3 507 W	3 788 W
2800	344 W	1 315 W	2 729 W	3 704 W	4 001 W
2900	357 W	1 371 W	2 845 W	3 861 W	4 170 W
3000	371 W	1 371 W	2 845 W	3 861 W	4 170 W
3200	398 W	1 546 W	3 209 W	4 354 W	4 703 W
3400	426 W	1 604 W	3 330 W	4 518 W	4 880 W
3600	454 W	1 767 W	3 668 W	4 978 W	5 376 W
3800	481 W	1 825 W	3 789 W	5 142 W	5 554 W
4000	508 W	1 930 W	4 007 W	5 438 W	5 873 W
4200	536 W	2 056 W	4 268 W	5 792 W	6 256 W
4400	564 W	2 163 W	4 491 W	6 095 W	6 582 W
4600	591 W	2 289 W	4 752 W	6 449 W	6 965 W
4800	618 W	2 335 W	4 849 W	6 580 W	7 107 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	39	42
800	-	< 25	30	40	43
900	-	< 25	30	41	44
1000	-	< 25	31	41	45
1100	-	< 25	32	42	45
1200	-	< 25	32	42	46
1300	-	< 25	33	43	46
1400	-	< 25	33	43	47
1500	-	< 25	34	44	47
1600	-	< 25	34	44	48
1700	-	< 25	35	45	48
1800	-	< 25	35	45	48
1900	-	< 25	35	45	49
2000	-	< 25	36	46	49
2100	-	< 25	36	46	49
2200	-	< 25	36	46	50
2300	-	< 25	37	47	50
2400	-	< 25	37	47	50
2500	-	< 25	37	47	51
2600	-	< 25	38	48	51
2700	-	25	38	48	51
2800	-	25	38	48	51
2900	-	25	38	48	52
3000	-	25	38	48	52
3200	-	25	39	49	52
3400	-	25	39	49	53
3600	-	25	40	50	53
3800	-	25	40	50	53
4000	-	25	40	50	54
4200	-	25	41	51	54
4400	-	25	41	51	54
4600	-	25	41	51	55
4800	-	25	42	51	55

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0110 0425

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Suitable for low-temperature systems
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	110 mm
Width [W]	425 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

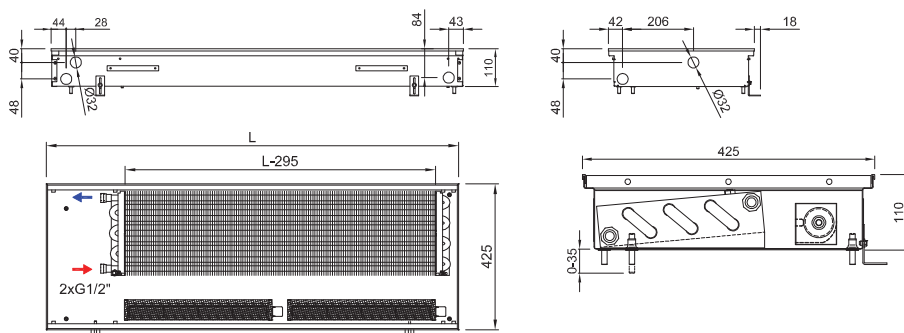
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

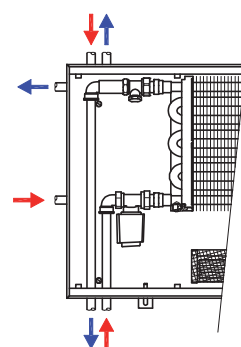
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



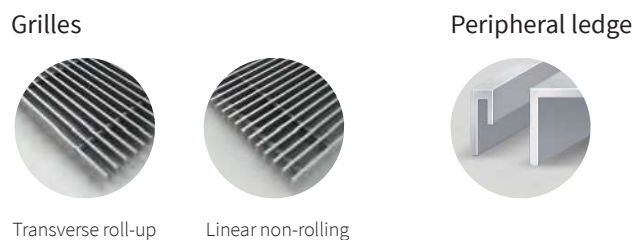
Connection to heating system



Accessories per order



Variants



ⓘ Grilles → 6 ⓘ Ledges → 8 ⓘ Acoustic power → 13 ⓘ Accessories → 14 ⓘ Hydraulic parameters → 126 ⓘ Wiring → 129

Code example: FRT 0110 0425 4400 C 64 L2 L - 5

Trench heater **FRT** H = 110 mm, W = 425 mm, L = 4 400 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „64“ stained oak grille, transverse, roll-up, „L2“ peripheral ledge, „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0110 0425

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	153 W	409 W	776 W	1 027 W	1 106 W
800	191 W	546 W	1 034 W	1 369 W	1 474 W
900	229 W	655 W	1 241 W	1 643 W	1 769 W
1000	267 W	928 W	1 758 W	2 328 W	2 506 W
1100	305 W	928 W	1 758 W	2 328 W	2 506 W
1200	343 W	1 092 W	2 068 W	2 738 W	2 948 W
1300	380 W	1 201 W	2 275 W	3 012 W	3 243 W
1400	418 W	1 337 W	2 534 W	3 354 W	3 612 W
1500	456 W	1 474 W	2 792 W	3 697 W	3 980 W
1600	494 W	1 605 W	3 040 W	4 025 W	4 334 W
1700	532 W	1 605 W	3 040 W	4 025 W	4 334 W
1800	570 W	1 856 W	3 516 W	4 655 W	5 012 W
1900	607 W	2 014 W	3 816 W	5 052 W	5 440 W
2000	645 W	2 151 W	4 075 W	5 394 W	5 808 W
2100	683 W	2 260 W	4 281 W	5 668 W	6 103 W
2200	721 W	2 260 W	4 281 W	5 668 W	6 103 W
2300	759 W	2 533 W	4 799 W	6 353 W	6 840 W
2400	797 W	2 533 W	4 799 W	6 353 W	6 840 W
2500	835 W	2 696 W	5 109 W	6 764 W	7 282 W
2600	872 W	2 806 W	5 316 W	7 037 W	7 577 W
2700	910 W	2 915 W	5 522 W	7 311 W	7 872 W
2800	948 W	3 079 W	5 833 W	7 722 W	8 314 W
2900	986 W	3 210 W	6 081 W	8 051 W	8 668 W
3000	1 024 W	3 210 W	6 081 W	8 051 W	8 668 W
3200	1 099 W	3 619 W	6 857 W	9 077 W	9 774 W
3400	1 175 W	3 755 W	7 115 W	9 420 W	10 142 W
3600	1 251 W	4 137 W	7 839 W	10 378 W	11 174 W
3800	1 327 W	4 274 W	8 098 W	10 720 W	11 543 W
4000	1 402 W	4 520 W	8 563 W	11 336 W	12 206 W
4200	1 478 W	4 814 W	9 121 W	12 076 W	13 002 W
4400	1 554 W	5 065 W	9 597 W	12 706 W	13 680 W
4600	1 629 W	5 360 W	10 156 W	13 445 W	14 476 W
4800	1 705 W	5 469 W	10 362 W	13 719 W	14 771 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	74 W	233 W	442 W	586 W	631 W
800	92 W	311 W	590 W	780 W	840 W
900	111 W	373 W	708 W	937 W	1 009 W
1000	129 W	529 W	1 002 W	1 327 W	1 429 W
1100	148 W	529 W	1 002 W	1 327 W	1 429 W
1200	166 W	623 W	1 179 W	1 561 W	1 681 W
1300	184 W	685 W	1 297 W	1 717 W	1 849 W
1400	202 W	762 W	1 445 W	1 912 W	2 059 W
1500	221 W	840 W	1 592 W	2 108 W	2 269 W
1600	239 W	915 W	1 733 W	2 295 W	2 471 W
1700	258 W	915 W	1 733 W	2 295 W	2 471 W
1800	276 W	1 058 W	2 005 W	2 654 W	2 857 W
1900	294 W	1 148 W	2 176 W	2 880 W	3 101 W
2000	312 W	1 226 W	2 323 W	3 075 W	3 311 W
2100	331 W	1 288 W	2 441 W	3 231 W	3 479 W
2200	349 W	1 288 W	2 441 W	3 231 W	3 479 W
2300	367 W	1 444 W	2 736 W	3 622 W	3 900 W
2400	386 W	1 444 W	2 736 W	3 622 W	3 900 W
2500	404 W	1 537 W	2 913 W	3 856 W	4 152 W
2600	422 W	1 600 W	3 031 W	4 012 W	4 320 W
2700	441 W	1 662 W	3 148 W	4 168 W	4 488 W
2800	459 W	1 755 W	3 326 W	4 402 W	4 740 W
2900	477 W	1 830 W	3 467 W	4 590 W	4 942 W
3000	496 W	1 830 W	3 467 W	4 590 W	4 942 W
3200	532 W	2 063 W	3 909 W	5 175 W	5 572 W
3400	569 W	2 141 W	4 056 W	5 371 W	5 782 W
3600	606 W	2 359 W	4 469 W	5 917 W	6 371 W
3800	642 W	2 437 W	4 617 W	6 112 W	6 581 W
4000	679 W	2 577 W	4 882 W	6 463 W	6 959 W
4200	716 W	2 745 W	5 200 W	6 885 W	7 413 W
4400	752 W	2 888 W	5 471 W	7 244 W	7 799 W
4600	789 W	3 056 W	5 790 W	7 665 W	8 253 W
4800	825 W	3 118 W	5 908 W	7 821 W	8 421 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	28	39	42
800	-	< 25	29	40	43
900	-	25	30	40	44
1000	-	26	30	41	44
1100	-	26	31	41	45
1200	-	26	31	42	45
1300	-	27	32	42	46
1400	-	27	32	43	46
1500	-	28	33	43	47
1600	-	28	33	44	47
1700	-	28	33	44	47
1800	-	29	34	44	48
1900	-	29	34	45	48
2000	-	29	34	45	48
2100	-	29	35	45	49
2200	-	30	35	45	49
2300	-	30	35	46	49
2400	-	30	35	46	49
2500	-	30	36	46	50
2600	-	30	36	46	50
2700	-	31	36	47	50
2800	-	31	36	47	50
2900	-	31	36	47	51
3000	-	31	37	47	51
3200	-	32	37	48	51
3400	-	32	37	48	51
3600	-	32	38	48	52
3800	-	32	38	49	52
4000	-	33	38	49	52
4200	-	33	38	49	53
4400	-	33	39	49	53
4600	-	33	39	50	53
4800	-	34	39	50	53

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0125 0250

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Good balance of heating output and size
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	125 mm
Width [W]	250 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

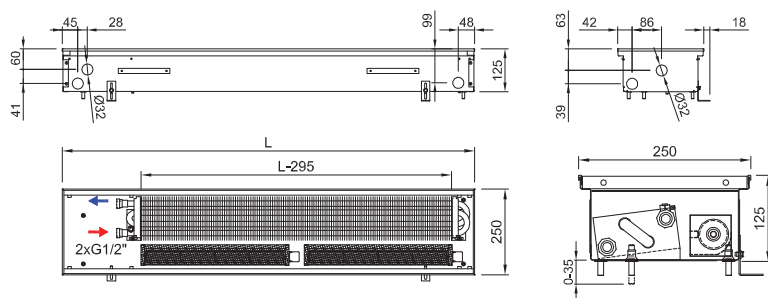
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

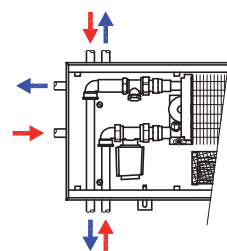
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according to the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according to the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

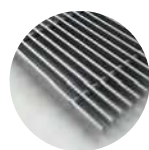


Accessories per order

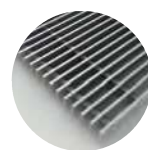


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0125 0250 1500 C 62 L2 L - 5

Trench heater **FRT** H = 125 mm, W = 250 mm, L = 1 500 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „62“ stained beech grille, transverse, roll-up, „L2“ peripheral ledge, „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room) „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0125 0250

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	111 W	298 W	619 W	822 W	886 W
800	139 W	397 W	825 W	1 096 W	1 181 W
900	166 W	476 W	990 W	1 315 W	1 417 W
1000	194 W	675 W	1 403 W	1 864 W	2 008 W
1100	222 W	675 W	1 403 W	1 864 W	2 008 W
1200	249 W	794 W	1 651 W	2 192 W	2 362 W
1300	277 W	874 W	1 816 W	2 412 W	2 599 W
1400	304 W	973 W	2 022 W	2 686 W	2 894 W
1500	332 W	1 072 W	2 228 W	2 960 W	3 189 W
1600	359 W	1 167 W	2 426 W	3 223 W	3 473 W
1700	387 W	1 167 W	2 426 W	3 223 W	3 473 W
1800	414 W	1 350 W	2 806 W	3 727 W	4 016 W
1900	442 W	1 465 W	3 045 W	4 045 W	4 359 W
2000	469 W	1 564 W	3 252 W	4 319 W	4 654 W
2100	497 W	1 644 W	3 417 W	4 538 W	4 890 W
2200	524 W	1 644 W	3 417 W	4 538 W	4 890 W
2300	552 W	1 842 W	3 829 W	5 086 W	5 481 W
2400	579 W	1 842 W	3 829 W	5 086 W	5 481 W
2500	607 W	1 961 W	4 077 W	5 415 W	5 835 W
2600	634 W	2 041 W	4 242 W	5 634 W	6 071 W
2700	662 W	2 120 W	4 407 W	5 854 W	6 307 W
2800	689 W	2 239 W	4 655 W	6 182 W	6 662 W
2900	717 W	2 335 W	4 853 W	6 446 W	6 945 W
3000	744 W	2 335 W	4 853 W	6 446 W	6 945 W
3200	799 W	2 633 W	5 472 W	7 268 W	7 831 W
3400	854 W	2 732 W	5 678 W	7 542 W	8 126 W
3600	910 W	3 010 W	6 256 W	8 309 W	8 953 W
3800	965 W	3 109 W	6 462 W	8 583 W	9 249 W
4000	1 020 W	3 288 W	6 833 W	9 076 W	9 780 W
4200	1 075 W	3 502 W	7 279 W	9 668 W	10 418 W
4400	1 130 W	3 685 W	7 659 W	10 173 W	10 961 W
4600	1 185 W	3 899 W	8 104 W	10 764 W	11 599 W
4800	1 240 W	3 979 W	8 269 W	10 984 W	11 835 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	54 W	170 W	353 W	469 W	505 W
800	67 W	226 W	470 W	625 W	673 W
900	80 W	271 W	564 W	750 W	808 W
1000	94 W	385 W	800 W	1 063 W	1 145 W
1100	107 W	385 W	800 W	1 063 W	1 145 W
1200	121 W	453 W	941 W	1 250 W	1 347 W
1300	134 W	498 W	1 035 W	1 375 W	1 482 W
1400	147 W	555 W	1 153 W	1 531 W	1 650 W
1500	161 W	611 W	1 270 W	1 688 W	1 818 W
1600	174 W	665 W	1 383 W	1 837 W	1 980 W
1700	187 W	665 W	1 383 W	1 837 W	1 980 W
1800	200 W	770 W	1 600 W	2 125 W	2 290 W
1900	214 W	835 W	1 736 W	2 306 W	2 485 W
2000	227 W	892 W	1 854 W	2 462 W	2 653 W
2100	241 W	937 W	1 948 W	2 587 W	2 788 W
2200	254 W	937 W	1 948 W	2 587 W	2 788 W
2300	267 W	1 050 W	2 183 W	2 900 W	3 125 W
2400	280 W	1 050 W	2 183 W	2 900 W	3 125 W
2500	294 W	1 118 W	2 324 W	3 087 W	3 327 W
2600	307 W	1 164 W	2 418 W	3 212 W	3 461 W
2700	321 W	1 209 W	2 513 W	3 337 W	3 596 W
2800	334 W	1 276 W	2 654 W	3 524 W	3 798 W
2900	347 W	1 331 W	2 767 W	3 675 W	3 959 W
3000	360 W	1 331 W	2 767 W	3 675 W	3 959 W
3200	387 W	1 501 W	3 120 W	4 144 W	4 465 W
3400	413 W	1 558 W	3 237 W	4 300 W	4 633 W
3600	441 W	1 716 W	3 567 W	4 737 W	5 104 W
3800	467 W	1 773 W	3 684 W	4 893 W	5 273 W
4000	494 W	1 875 W	3 896 W	5 174 W	5 576 W
4200	520 W	1 997 W	4 150 W	5 512 W	5 940 W
4400	547 W	2 101 W	4 367 W	5 800 W	6 249 W
4600	574 W	2 223 W	4 620 W	6 137 W	6 613 W
4800	600 W	2 269 W	4 714 W	6 262 W	6 747 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	40	43
800	-	< 25	30	40	44
900	-	< 25	31	41	45
1000	-	< 25	32	42	45
1100	-	< 25	32	43	46
1200	-	< 25	33	43	47
1300	-	< 25	33	44	47
1400	-	< 25	34	44	48
1500	-	< 25	34	45	48
1600	-	< 25	35	45	48
1700	-	< 25	35	45	49
1800	-	< 25	36	46	49
1900	-	< 25	36	46	50
2000	-	< 25	36	46	50
2100	-	25	37	47	50
2200	-	25	37	47	51
2300	-	25	37	47	51
2400	-	25	38	48	51
2500	-	25	38	48	51
2600	-	25	38	48	52
2700	-	25	38	48	52
2800	-	25	39	49	52
2900	-	25	39	49	52
3000	-	25	39	49	53
3200	-	25	39	50	53
3400	-	25	40	50	53
3600	-	25	40	50	54
3800	-	25	41	51	54
4000	-	26	41	51	54
4200	-	26	41	51	55
4400	-	26	42	52	55
4600	-	26	42	52	55
4800	-	26	42	52	56

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0125 0300

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Suitable for low-temperature systems
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	125 mm
Width [W]	300 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2×G1/2" inner

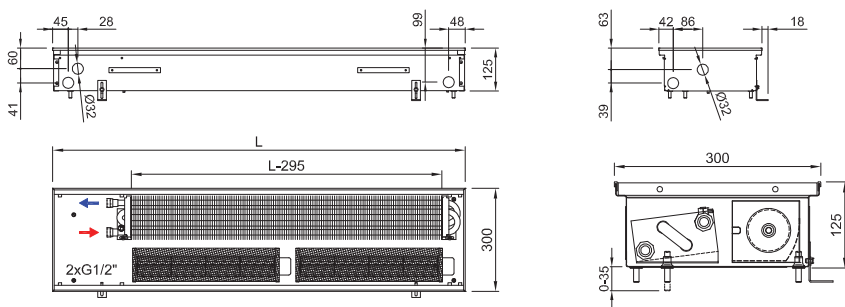
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

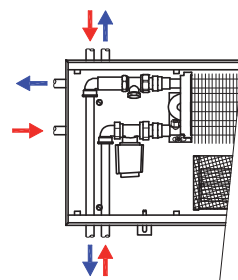
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

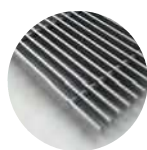


Accessories per order

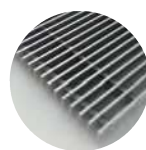


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



ⓘ Grilles → 6
Ⓜ Ledges → 8
Ⓜ Acoustic power → 13
⊕ Accessories → 14
Ⓜ Hydraulic parameters → 126
Ⓜ Wiring → 129

Code example: FRT 0125 0300 2700 C 32 J3 R - 5

Trench heater **FRT** H = 125 mm, W = 300 mm, L = 2 700 mm, „**C**“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „**32**“ black anodized aluminium grille, linear, rigid, „**J3**“ peripheral ledge „**J**“, black anodized aluminium „**R**“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „**5**“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0125 0300

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	128 W	343 W	664 W	884 W	1 114 W
800	159 W	459 W	887 W	1 182 W	1 489 W
900	191 W	574 W	1 111 W	1 480 W	1 864 W
1000	222 W	751 W	1 453 W	1 935 W	2 438 W
1100	254 W	751 W	1 453 W	1 935 W	2 438 W
1200	285 W	917 W	1 775 W	2 364 W	2 978 W
1300	317 W	1 033 W	1 998 W	2 661 W	3 353 W
1400	348 W	1 094 W	2 117 W	2 819 W	3 552 W
1500	380 W	1 210 W	2 340 W	3 117 W	3 927 W
1600	411 W	1 333 W	2 580 W	3 435 W	4 328 W
1700	443 W	1 333 W	2 580 W	3 435 W	4 328 W
1800	475 W	1 502 W	2 906 W	3 870 W	4 876 W
1900	506 W	1 676 W	3 244 W	4 320 W	5 442 W
2000	538 W	1 792 W	3 467 W	4 617 W	5 817 W
2100	569 W	1 908 W	3 691 W	4 915 W	6 193 W
2200	601 W	1 908 W	3 691 W	4 915 W	6 193 W
2300	632 W	2 084 W	4 033 W	5 370 W	6 766 W
2400	664 W	2 084 W	4 033 W	5 370 W	6 766 W
2500	695 W	2 251 W	4 355 W	5 799 W	7 306 W
2600	727 W	2 366 W	4 578 W	6 097 W	7 682 W
2700	758 W	2 482 W	4 802 W	6 394 W	8 057 W
2800	790 W	2 543 W	4 920 W	6 552 W	8 255 W
2900	821 W	2 667 W	5 159 W	6 871 W	8 657 W
3000	853 W	2 667 W	5 159 W	6 871 W	8 657 W
3200	916 W	3 010 W	5 823 W	7 755 W	9 771 W
3400	979 W	3 125 W	6 047 W	8 053 W	10 146 W
3600	1 042 W	3 418 W	6 612 W	8 806 W	11 095 W
3800	1 105 W	3 584 W	6 934 W	9 234 W	11 635 W
4000	1 168 W	3 815 W	7 381 W	9 830 W	12 385 W
4200	1 231 W	4 000 W	7 739 W	10 306 W	12 985 W
4400	1 294 W	4 169 W	8 065 W	10 741 W	13 533 W
4600	1 357 W	4 459 W	8 626 W	11 488 W	14 474 W
4800	1 420 W	4 574 W	8 850 W	11 786 W	14 849 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	62 W	196 W	379 W	504 W	635 W
800	77 W	262 W	506 W	674 W	849 W
900	92 W	327 W	633 W	844 W	1 063 W
1000	107 W	428 W	828 W	1 103 W	1 390 W
1100	123 W	428 W	828 W	1 103 W	1 390 W
1200	138 W	523 W	1 012 W	1 348 W	1 698 W
1300	153 W	589 W	1 139 W	1 517 W	1 912 W
1400	168 W	624 W	1 207 W	1 607 W	2 025 W
1500	184 W	690 W	1 334 W	1 777 W	2 239 W
1600	199 W	760 W	1 471 W	1 958 W	2 467 W
1700	214 W	760 W	1 471 W	1 958 W	2 467 W
1800	230 W	856 W	1 657 W	2 206 W	2 780 W
1900	245 W	956 W	1 849 W	2 463 W	3 103 W
2000	260 W	1 022 W	1 977 W	2 632 W	3 316 W
2100	275 W	1 088 W	2 104 W	2 802 W	3 531 W
2200	291 W	1 088 W	2 104 W	2 802 W	3 531 W
2300	306 W	1 188 W	2 299 W	3 062 W	3 857 W
2400	321 W	1 188 W	2 299 W	3 062 W	3 857 W
2500	336 W	1 283 W	2 483 W	3 306 W	4 165 W
2600	352 W	1 349 W	2 610 W	3 476 W	4 380 W
2700	367 W	1 415 W	2 738 W	3 645 W	4 593 W
2800	382 W	1 450 W	2 805 W	3 735 W	4 706 W
2900	397 W	1 521 W	2 941 W	3 917 W	4 936 W
3000	413 W	1 521 W	2 941 W	3 917 W	4 936 W
3200	443 W	1 716 W	3 320 W	4 421 W	5 571 W
3400	474 W	1 782 W	3 448 W	4 591 W	5 784 W
3600	504 W	1 949 W	3 770 W	5 020 W	6 325 W
3800	535 W	2 043 W	3 953 W	5 264 W	6 633 W
4000	565 W	2 175 W	4 208 W	5 604 W	7 061 W
4200	596 W	2 280 W	4 412 W	5 876 W	7 403 W
4400	626 W	2 377 W	4 598 W	6 124 W	7 715 W
4600	657 W	2 542 W	4 918 W	6 550 W	8 252 W
4800	687 W	2 608 W	5 046 W	6 719 W	8 466 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	25	34	46	57
800	-	25	35	46	57
900	-	26	35	47	58
1000	-	26	36	47	58
1100	-	27	36	47	58
1200	-	27	37	48	59
1300	-	28	37	48	59
1400	-	28	37	48	59
1500	-	29	38	48	60
1600	-	29	38	49	60
1700	-	29	38	49	60
1800	-	29	38	49	60
1900	-	30	39	49	61
2000	-	30	39	49	61
2100	-	30	39	50	61
2200	-	31	39	50	61
2300	-	31	40	50	61
2400	-	31	40	50	62
2500	-	31	40	50	62
2600	-	31	40	50	62
2700	-	32	40	51	62
2800	-	32	40	51	62
2900	-	32	41	51	62
3000	-	32	41	51	62
3200	-	32	41	51	63
3400	-	33	41	51	63
3600	-	33	41	52	63
3800	-	33	42	52	63
4000	-	34	42	52	64
4200	-	34	42	52	64
4400	-	34	42	52	64
4600	-	34	43	52	64
4800	-	35	43	53	64



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	3 W	7 W
800	1	1 W	1 W	4 W	9 W
900	1	1 W	2 W	6 W	13 W
1000	1	1 W	2 W	7 W	15 W
1100	1	1 W	2 W	7 W	15 W
1200	2	1 W	3 W	8 W	18 W
1300	2	2 W	3 W	9 W	21 W
1400	2	2 W	3 W	9 W	21 W
1500	2	2 W	3 W	10 W	24 W
1600	1	2 W	4 W	11 W	25 W
1700	2	2 W	4 W	12 W	28 W
1800	2	2 W	4 W	13 W	30 W
1900	2	2 W	5 W	14 W	31 W
2000	2	2 W	5 W	15 W	34 W
2100	2	3 W	6 W	16 W	38 W
2200	2	3 W	6 W	16 W	38 W
2300	2	3 W	6 W	17 W	40 W
2400	2	3 W	6 W	17 W	40 W
2500	3	3 W	6 W	18 W	42 W
2600	3	3 W	7 W	20 W	46 W
2700	3	4 W	7 W	22 W	50 W
2800	3	4 W	7 W	21 W	49 W
2900	2	4 W	7 W	22 W	50 W
3000	3	4 W	8 W	22 W	52 W
3200	3	4 W	8 W	23 W	56 W
3400	3	4 W	9 W	25 W	59 W
3600	3	5 W	9 W	27 W	65 W
3800	4	5 W	10 W	30 W	69 W
4000	4	5 W	11 W	31 W	75 W
4200	3	5 W	11 W	31 W	75 W
4400	4	6 W	12 W	33 W	80 W
4600	4	6 W	12 W	35 W	83 W
4800	4	6 W	13 W	37 W	87 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0125 0425

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Suitable for low-temperature systems
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	125 mm
Width [W]	425 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

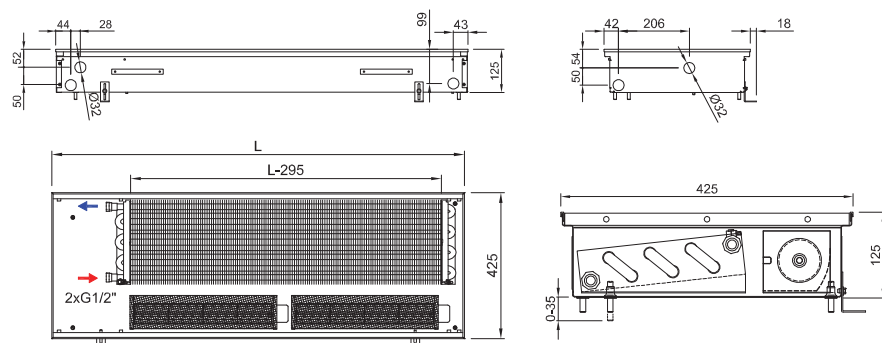
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

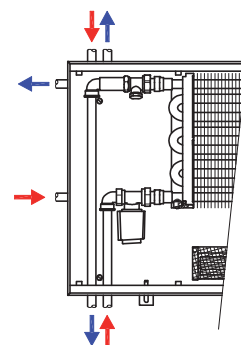
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



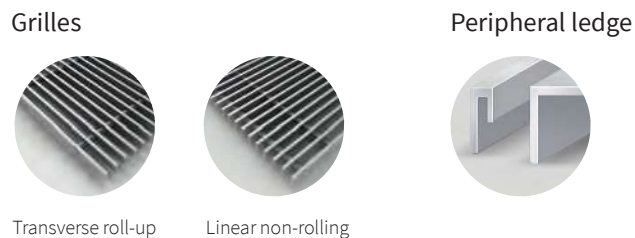
Connection to heating system



Accessories per order



Variants



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0125 0425 4400 C 64 L2 L - 5

Trench heater **FRT** H = 125 mm, W = 425 mm, L = 4 400 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „64“ stained oak grille, transverse, roll-up, „L2“ peripheral ledge, „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0125 0425

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	202 W	709 W	1 006 W	1 310 W	1 616 W
800	252 W	947 W	1 345 W	1 751 W	2 160 W
900	302 W	1 186 W	1 684 W	2 192 W	2 704 W
1000	352 W	1 551 W	2 202 W	2 867 W	3 536 W
1100	402 W	1 551 W	2 202 W	2 867 W	3 536 W
1200	452 W	1 895 W	2 690 W	3 502 W	4 320 W
1300	502 W	2 133 W	3 029 W	3 943 W	4 864 W
1400	552 W	2 260 W	3 209 W	4 177 W	5 152 W
1500	602 W	2 498 W	3 548 W	4 618 W	5 696 W
1600	652 W	2 754 W	3 910 W	5 090 W	6 279 W
1700	701 W	2 754 W	3 910 W	5 090 W	6 279 W
1800	751 W	3 102 W	4 405 W	5 734 W	7 073 W
1900	801 W	3 463 W	4 916 W	6 400 W	7 894 W
2000	851 W	3 701 W	5 255 W	6 841 W	8 438 W
2100	901 W	3 940 W	5 594 W	7 282 W	8 983 W
2200	951 W	3 940 W	5 594 W	7 282 W	8 983 W
2300	1 001 W	4 305 W	6 113 W	7 956 W	9 815 W
2400	1 051 W	4 305 W	6 113 W	7 956 W	9 815 W
2500	1 101 W	4 649 W	6 600 W	8 592 W	10 598 W
2600	1 151 W	4 887 W	6 939 W	9 033 W	11 142 W
2700	1 201 W	5 126 W	7 278 W	9 474 W	11 687 W
2800	1 251 W	5 252 W	7 458 W	9 707 W	11 975 W
2900	1 301 W	5 508 W	7 820 W	10 179 W	12 557 W
3000	1 350 W	5 508 W	7 820 W	10 179 W	12 557 W
3200	1 450 W	6 216 W	8 827 W	11 489 W	14 173 W
3400	1 550 W	6 455 W	9 165 W	11 930 W	14 717 W
3600	1 650 W	7 059 W	10 023 W	13 046 W	16 093 W
3800	1 750 W	7 402 W	10 511 W	13 681 W	16 877 W
4000	1 850 W	7 880 W	11 188 W	14 563 W	17 965 W
4200	1 950 W	8 261 W	11 730 W	15 269 W	18 836 W
4400	2 049 W	8 610 W	12 225 W	15 913 W	19 630 W
4600	2 149 W	9 209 W	13 076 W	17 020 W	20 995 W
4800	2 249 W	9 447 W	13 414 W	17 461 W	21 540 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	98 W	404 W	574 W	747 W	921 W
800	122 W	540 W	767 W	998 W	1 231 W
900	146 W	676 W	960 W	1 250 W	1 542 W
1000	170 W	884 W	1 255 W	1 635 W	2 016 W
1100	195 W	884 W	1 255 W	1 635 W	2 016 W
1200	219 W	1 080 W	1 534 W	1 997 W	2 463 W
1300	243 W	1 216 W	1 727 W	2 248 W	2 773 W
1400	267 W	1 288 W	1 830 W	2 381 W	2 937 W
1500	291 W	1 424 W	2 023 W	2 633 W	3 247 W
1600	316 W	1 570 W	2 229 W	2 902 W	3 580 W
1700	339 W	1 570 W	2 229 W	2 902 W	3 580 W
1800	364 W	1 769 W	2 511 W	3 269 W	4 032 W
1900	388 W	1 974 W	2 803 W	3 649 W	4 501 W
2000	412 W	2 110 W	2 996 W	3 900 W	4 811 W
2100	436 W	2 246 W	3 189 W	4 152 W	5 121 W
2200	460 W	2 246 W	3 189 W	4 152 W	5 121 W
2300	485 W	2 454 W	3 485 W	4 536 W	5 596 W
2400	509 W	2 454 W	3 485 W	4 536 W	5 596 W
2500	533 W	2 650 W	3 763 W	4 898 W	6 042 W
2600	557 W	2 786 W	3 956 W	5 150 W	6 352 W
2700	581 W	2 922 W	4 149 W	5 401 W	6 663 W
2800	606 W	2 994 W	4 252 W	5 534 W	6 827 W
2900	630 W	3 140 W	4 458 W	5 803 W	7 159 W
3000	654 W	3 140 W	4 458 W	5 803 W	7 159 W
3200	702 W	3 544 W	5 032 W	6 550 W	8 080 W
3400	750 W	3 680 W	5 225 W	6 802 W	8 390 W
3600	799 W	4 024 W	5 714 W	7 438 W	9 175 W
3800	847 W	4 220 W	5 993 W	7 800 W	9 622 W
4000	896 W	4 493 W	6 379 W	8 303 W	10 242 W
4200	944 W	4 710 W	6 688 W	8 705 W	10 739 W
4400	992 W	4 909 W	6 970 W	9 072 W	11 191 W
4600	1 040 W	5 250 W	7 455 W	9 703 W	11 970 W
4800	1 089 W	5 386 W	7 648 W	9 955 W	12 280 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	25	35	47	58
800	-	26	36	48	59
900	-	27	37	48	59
1000	-	27	37	48	60
1100	-	28	37	49	60
1200	-	28	38	49	61
1300	-	29	38	49	61
1400	-	29	39	50	61
1500	-	29	39	50	62
1600	-	30	39	50	62
1700	-	30	39	50	62
1800	-	30	40	51	62
1900	-	31	40	51	62
2000	-	31	40	51	63
2100	-	31	40	51	63
2200	-	31	41	51	63
2300	-	32	41	51	63
2400	-	32	41	52	63
2500	-	32	41	52	64
2600	-	32	41	52	64
2700	-	33	41	52	64
2800	-	33	42	52	64
2900	-	33	42	52	64
3000	-	33	42	52	64
3200	-	33	42	53	65
3400	-	34	42	53	65
3600	-	34	43	53	65
3800	-	34	43	53	65
4000	-	35	43	54	65
4200	-	35	43	54	66
4400	-	35	44	54	66
4600	-	35	44	54	66
4800	-	36	44	54	66



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	3 W	7 W
800	1	1 W	1 W	4 W	9 W
900	1	1 W	2 W	6 W	13 W
1000	1	1 W	2 W	7 W	15 W
1100	1	1 W	2 W	7 W	15 W
1200	2	1 W	3 W	8 W	18 W
1300	2	2 W	3 W	9 W	21 W
1400	2	2 W	3 W	9 W	21 W
1500	2	2 W	3 W	10 W	24 W
1600	1	2 W	4 W	11 W	25 W
1700	2	2 W	4 W	12 W	28 W
1800	2	2 W	4 W	13 W	30 W
1900	2	2 W	5 W	14 W	31 W
2000	2	2 W	5 W	15 W	34 W
2100	2	3 W	6 W	16 W	38 W
2200	2	3 W	6 W	16 W	38 W
2300	2	3 W	6 W	17 W	40 W
2400	2	3 W	6 W	17 W	40 W
2500	3	3 W	6 W	18 W	42 W
2600	3	3 W	7 W	20 W	46 W
2700	3	4 W	7 W	22 W	50 W
2800	3	4 W	7 W	21 W	49 W
2900	2	4 W	7 W	22 W	50 W
3000	3	4 W	8 W	22 W	52 W
3200	3	4 W	8 W	23 W	56 W
3400	3	4 W	9 W	25 W	59 W
3600	3	5 W	9 W	27 W	65 W
3800	4	5 W	10 W	30 W	69 W
4000	4	5 W	11 W	31 W	75 W
4200	3	5 W	11 W	31 W	75 W
4400	4	6 W	12 W	33 W	80 W
4600	4	6 W	12 W	35 W	83 W
4800	4	6 W	13 W	37 W	87 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0140 0250

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Narrow trench heater suitable for deeper floor
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **3 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	140 mm
Width [W]	250 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

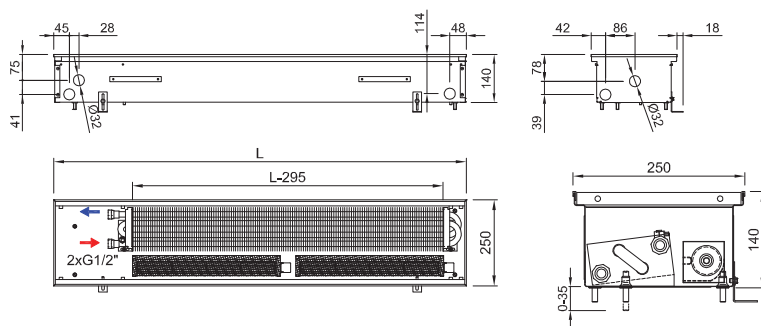
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

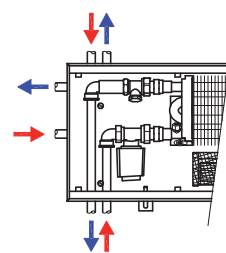
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

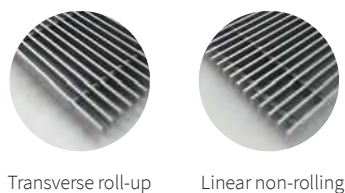


Accessories per order



Variants

Grilles



Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 00140 0250 1500 C 62 L2 L - 5

Trench heater **FRT** H=140 mm, W=250 mm, L=1 500 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „62“ stained beech grille, transverse, roll-up, „L2“ peripheral ledge „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room) „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0140 0250

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	89 W	311 W	645 W	894 W	928 W
800	111 W	414 W	859 W	1 192 W	1 237 W
900	133 W	497 W	1 031 W	1 430 W	1 484 W
1000	155 W	704 W	1 461 W	2 026 W	2 103 W
1100	177 W	704 W	1 461 W	2 026 W	2 103 W
1200	199 W	828 W	1 719 W	2 384 W	2 474 W
1300	221 W	911 W	1 891 W	2 622 W	2 722 W
1400	243 W	1 015 W	2 106 W	2 920 W	3 031 W
1500	265 W	1 118 W	2 320 W	3 218 W	3 340 W
1600	287 W	1 218 W	2 527 W	3 504 W	3 637 W
1700	309 W	1 218 W	2 527 W	3 504 W	3 637 W
1800	331 W	1 408 W	2 922 W	4 053 W	4 206 W
1900	353 W	1 528 W	3 171 W	4 398 W	4 565 W
2000	375 W	1 632 W	3 386 W	4 696 W	4 874 W
2100	397 W	1 714 W	3 558 W	4 935 W	5 121 W
2200	419 W	1 714 W	3 558 W	4 935 W	5 121 W
2300	441 W	1 922 W	3 988 W	5 531 W	5 740 W
2400	463 W	1 922 W	3 988 W	5 531 W	5 740 W
2500	485 W	2 046 W	4 245 W	5 888 W	6 111 W
2600	507 W	2 129 W	4 417 W	6 127 W	6 358 W
2700	529 W	2 211 W	4 589 W	6 365 W	6 606 W
2800	551 W	2 336 W	4 847 W	6 723 W	6 977 W
2900	573 W	2 435 W	5 053 W	7 009 W	7 274 W
3000	596 W	2 435 W	5 053 W	7 009 W	7 274 W
3200	640 W	2 746 W	5 698 W	7 903 W	8 202 W
3400	684 W	2 849 W	5 913 W	8 201 W	8 511 W
3600	728 W	3 139 W	6 514 W	9 035 W	9 377 W
3800	772 W	3 243 W	6 729 W	9 333 W	9 686 W
4000	816 W	3 429 W	7 116 W	9 869 W	10 243 W
4200	860 W	3 653 W	7 580 W	10 513 W	10 911 W
4400	904 W	3 843 W	7 975 W	11 061 W	11 480 W
4600	948 W	4 067 W	8 439 W	11 705 W	12 148 W
4800	992 W	4 149 W	8 611 W	11 943 W	12 395 W

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	43 W	177 W	368 W	510 W	529 W
800	54 W	236 W	490 W	680 W	705 W
900	64 W	283 W	588 W	815 W	846 W
1000	75 W	401 W	833 W	1 155 W	1 199 W
1100	86 W	401 W	833 W	1 155 W	1 199 W
1200	96 W	472 W	980 W	1 359 W	1 410 W
1300	107 W	519 W	1 078 W	1 495 W	1 552 W
1400	118 W	579 W	1 201 W	1 665 W	1 728 W
1500	128 W	637 W	1 323 W	1 835 W	1 904 W
1600	139 W	694 W	1 441 W	1 998 W	2 074 W
1700	150 W	694 W	1 441 W	1 998 W	2 074 W
1800	160 W	803 W	1 666 W	2 311 W	2 398 W
1900	171 W	871 W	1 808 W	2 507 W	2 603 W
2000	182 W	930 W	1 930 W	2 677 W	2 779 W
2100	192 W	977 W	2 028 W	2 814 W	2 920 W
2200	203 W	977 W	2 028 W	2 814 W	2 920 W
2300	214 W	1 096 W	2 274 W	3 153 W	3 272 W
2400	224 W	1 096 W	2 274 W	3 153 W	3 272 W
2500	235 W	1 166 W	2 420 W	3 357 W	3 484 W
2600	245 W	1 214 W	2 518 W	3 493 W	3 625 W
2700	256 W	1 261 W	2 616 W	3 629 W	3 766 W
2800	267 W	1 332 W	2 763 W	3 833 W	3 978 W
2900	277 W	1 388 W	2 881 W	3 996 W	4 147 W
3000	289 W	1 388 W	2 881 W	3 996 W	4 147 W
3200	310 W	1 566 W	3 249 W	4 506 W	4 676 W
3400	331 W	1 624 W	3 371 W	4 676 W	4 852 W
3600	352 W	1 790 W	3 714 W	5 151 W	5 346 W
3800	374 W	1 849 W	3 836 W	5 321 W	5 522 W
4000	395 W	1 955 W	4 057 W	5 627 W	5 840 W
4200	416 W	2 083 W	4 322 W	5 994 W	6 221 W
4400	438 W	2 191 W	4 547 W	6 306 W	6 545 W
4600	459 W	2 319 W	4 811 W	6 673 W	6 926 W
4800	480 W	2 365 W	4 909 W	6 809 W	7 067 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz



Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	< 25	29	40	43
800	-	< 25	30	40	44
900	-	< 25	31	41	45
1000	-	< 25	32	42	45
1100	-	< 25	32	43	46
1200	-	< 25	33	43	47
1300	-	< 25	33	44	47
1400	-	< 25	34	44	48
1500	-	< 25	34	45	48
1600	-	< 25	35	45	48
1700	-	< 25	35	45	49
1800	-	< 25	36	46	49
1900	-	< 25	36	46	50
2000	-	< 25	36	46	50
2100	-	25	37	47	50
2200	-	25	37	47	51
2300	-	25	37	47	51
2400	-	25	38	48	51
2500	-	25	38	48	51
2600	-	25	38	48	52
2700	-	25	38	48	52
2800	-	25	39	49	52
2900	-	25	39	49	52
3000	-	25	39	49	53
3200	-	25	39	50	53
3400	-	25	40	50	53
3600	-	25	40	50	54
3800	-	25	41	51	54
4000	-	26	41	51	54
4200	-	26	41	51	55
4400	-	26	42	52	55
4600	-	26	42	52	55
4800	-	26	42	52	56



Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	2 W	2 W	3 W
800	1	2 W	2 W	3 W	4 W
900	1	2 W	3 W	4 W	5 W
1000	1	2 W	3 W	5 W	6 W
1100	1	2 W	3 W	5 W	6 W
1200	2	3 W	4 W	6 W	8 W
1300	2	3 W	5 W	7 W	9 W
1400	2	3 W	5 W	7 W	9 W
1500	2	4 W	6 W	8 W	10 W
1600	1	4 W	6 W	8 W	10 W
1700	2	4 W	6 W	9 W	11 W
1800	2	5 W	7 W	10 W	12 W
1900	2	5 W	7 W	10 W	12 W
2000	2	5 W	7 W	10 W	13 W
2100	2	5 W	8 W	11 W	14 W
2200	2	5 W	8 W	11 W	14 W
2300	2	6 W	9 W	13 W	16 W
2400	2	6 W	9 W	13 W	16 W
2500	3	6 W	9 W	14 W	17 W
2600	3	7 W	10 W	14 W	18 W
2700	3	7 W	11 W	15 W	19 W
2800	3	7 W	11 W	15 W	19 W
2900	2	7 W	11 W	15 W	19 W
3000	3	8 W	11 W	16 W	20 W
3200	3	8 W	12 W	18 W	22 W
3400	3	9 W	13 W	18 W	23 W
3600	3	9 W	14 W	20 W	25 W
3800	4	10 W	14 W	21 W	26 W
4000	4	11 W	16 W	23 W	28 W
4200	3	11 W	16 W	23 W	28 W
4400	4	12 W	17 W	25 W	31 W
4600	4	12 W	18 W	26 W	32 W
4800	4	12 W	18 W	27 W	33 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0140 0300

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Suitable for low-temperature systems
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	140 mm
Width [W]	300 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

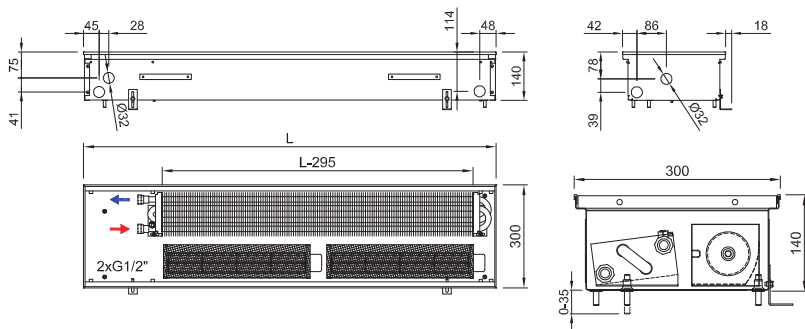
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

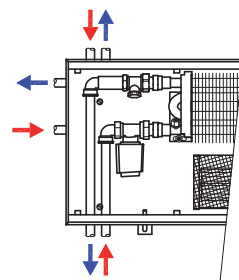
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

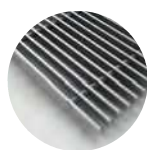


Accessories per order

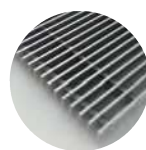


Variants

Grilles



Transverse roll-up



Linear non-rolling

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0140 0300 2700 C 32 J3 R - 5

Trench heater **FRT** H = 140 mm, W = 300 mm, L = 2 700 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „32“ black anodized aluminium grille, linear, rigid, „J3“ peripheral ledge „J“, black anodized aluminium „R“ water connection at the right side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0140 0300

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	127 W	446 W	706 W	930 W	1 201 W
800	159 W	597 W	944 W	1 244 W	1 605 W
900	190 W	747 W	1 182 W	1 557 W	2 009 W
1000	222 W	977 W	1 546 W	2 036 W	2 628 W
1100	253 W	977 W	1 546 W	2 036 W	2 628 W
1200	285 W	1 193 W	1 888 W	2 487 W	3 210 W
1300	316 W	1 344 W	2 126 W	2 800 W	3 615 W
1400	347 W	1 423 W	2 252 W	2 966 W	3 829 W
1500	379 W	1 574 W	2 490 W	3 280 W	4 233 W
1600	410 W	1 735 W	2 745 W	3 615 W	4 666 W
1700	442 W	1 735 W	2 745 W	3 615 W	4 666 W
1800	473 W	1 954 W	3 092 W	4 072 W	5 256 W
1900	505 W	2 181 W	3 451 W	4 545 W	5 867 W
2000	536 W	2 331 W	3 689 W	4 858 W	6 271 W
2100	568 W	2 482 W	3 927 W	5 171 W	6 675 W
2200	599 W	2 482 W	3 927 W	5 171 W	6 675 W
2300	630 W	2 712 W	4 291 W	5 651 W	7 294 W
2400	662 W	2 712 W	4 291 W	5 651 W	7 294 W
2500	693 W	2 928 W	4 633 W	6 102 W	7 876 W
2600	725 W	3 078 W	4 871 W	6 415 W	8 280 W
2700	756 W	3 229 W	5 109 W	6 728 W	8 685 W
2800	788 W	3 308 W	5 235 W	6 894 W	8 899 W
2900	819 W	3 469 W	5 489 W	7 229 W	9 331 W
3000	851 W	3 469 W	5 489 W	7 229 W	9 331 W
3200	913 W	3 916 W	6 196 W	8 160 W	10 532 W
3400	976 W	4 066 W	6 434 W	8 473 W	10 937 W
3600	1 039 W	4 446 W	7 035 W	9 265 W	11 959 W
3800	1 102 W	4 663 W	7 378 W	9 716 W	12 542 W
4000	1 165 W	4 963 W	7 854 W	10 343 W	13 350 W
4200	1 228 W	5 204 W	8 234 W	10 844 W	13 997 W
4400	1 291 W	5 423 W	8 581 W	11 301 W	14 587 W
4600	1 354 W	5 800 W	9 178 W	12 088 W	15 602 W
4800	1 417 W	5 951 W	9 416 W	12 401 W	16 007 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	61 W	254 W	403 W	530 W	685 W
800	77 W	340 W	538 W	709 W	915 W
900	92 W	426 W	674 W	888 W	1 145 W
1000	107 W	557 W	881 W	1 161 W	1 498 W
1100	122 W	557 W	881 W	1 161 W	1 498 W
1200	138 W	680 W	1 076 W	1 418 W	1 830 W
1300	153 W	766 W	1 212 W	1 596 W	2 061 W
1400	168 W	811 W	1 284 W	1 691 W	2 183 W
1500	183 W	897 W	1 420 W	1 870 W	2 413 W
1600	198 W	989 W	1 565 W	2 061 W	2 660 W
1700	214 W	989 W	1 565 W	2 061 W	2 660 W
1800	229 W	1 114 W	1 763 W	2 322 W	2 997 W
1900	244 W	1 243 W	1 967 W	2 591 W	3 345 W
2000	260 W	1 329 W	2 103 W	2 770 W	3 575 W
2100	275 W	1 415 W	2 239 W	2 948 W	3 806 W
2200	290 W	1 415 W	2 239 W	2 948 W	3 806 W
2300	305 W	1 546 W	2 446 W	3 222 W	4 158 W
2400	321 W	1 546 W	2 446 W	3 222 W	4 158 W
2500	336 W	1 669 W	2 641 W	3 479 W	4 490 W
2600	351 W	1 755 W	2 777 W	3 657 W	4 721 W
2700	366 W	1 841 W	2 913 W	3 836 W	4 951 W
2800	382 W	1 886 W	2 985 W	3 930 W	5 073 W
2900	397 W	1 978 W	3 129 W	4 121 W	5 320 W
3000	412 W	1 978 W	3 129 W	4 121 W	5 320 W
3200	442 W	2 233 W	3 532 W	4 652 W	6 005 W
3400	473 W	2 318 W	3 668 W	4 831 W	6 235 W
3600	503 W	2 535 W	4 011 W	5 282 W	6 818 W
3800	534 W	2 658 W	4 206 W	5 539 W	7 150 W
4000	564 W	2 830 W	4 478 W	5 897 W	7 611 W
4200	595 W	2 967 W	4 694 W	6 182 W	7 980 W
4400	625 W	3 092 W	4 892 W	6 443 W	8 316 W
4600	656 W	3 307 W	5 233 W	6 892 W	8 895 W
4800	686 W	3 393 W	5 368 W	7 070 W	9 126 W

Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	25	34	46	57
800	-	25	35	46	57
900	-	26	35	47	58
1000	-	26	36	47	58
1100	-	27	36	47	58
1200	-	27	37	48	59
1300	-	28	37	48	59
1400	-	28	37	48	59
1500	-	29	38	48	60
1600	-	29	38	49	60
1700	-	29	38	49	60
1800	-	29	38	49	60
1900	-	30	39	49	61
2000	-	30	39	49	61
2100	-	30	39	50	61
2200	-	31	39	50	61
2300	-	31	40	50	61
2400	-	31	40	50	62
2500	-	31	40	50	62
2600	-	31	40	50	62
2700	-	32	40	51	62
2800	-	32	40	51	62
2900	-	32	41	51	62
3000	-	32	41	51	62
3200	-	32	41	51	63
3400	-	33	41	51	63
3600	-	33	41	52	63
3800	-	33	42	52	63
4000	-	34	42	52	64
4200	-	34	42	52	64
4400	-	34	42	52	64
4600	-	34	43	52	64
4800	-	35	43	53	64

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	3 W	7 W
800	1	1 W	1 W	4 W	9 W
900	1	1 W	2 W	6 W	13 W
1000	1	1 W	2 W	7 W	15 W
1100	2	1 W	2 W	7 W	15 W
1200	2	1 W	3 W	8 W	18 W
1300	2	2 W	3 W	9 W	21 W
1400	2	2 W	3 W	9 W	21 W
1500	1	2 W	3 W	10 W	24 W
1600	2	2 W	4 W	11 W	25 W
1700	2	2 W	4 W	12 W	28 W
1800	2	2 W	4 W	13 W	30 W
1900	2	2 W	5 W	14 W	31 W
2000	2	2 W	5 W	15 W	34 W
2100	2	3 W	6 W	16 W	38 W
2200	2	3 W	6 W	16 W	38 W
2300	2	3 W	6 W	17 W	40 W
2400	3	3 W	6 W	17 W	40 W
2500	3	3 W	6 W	18 W	42 W
2600	3	3 W	7 W	20 W	46 W
2700	3	4 W	7 W	22 W	50 W
2800	2	4 W	7 W	21 W	49 W
2900	3	4 W	7 W	22 W	50 W
3000	3	4 W	8 W	22 W	52 W
3200	3	4 W	8 W	23 W	56 W
3400	3	4 W	9 W	25 W	59 W
3600	4	5 W	9 W	27 W	65 W
3800	4	5 W	10 W	30 W	69 W
4000	3	5 W	11 W	31 W	75 W
4200	4	5 W	11 W	31 W	75 W
4400	4	6 W	12 W	33 W	80 W
4600	4	6 W	12 W	35 W	83 W
4800	4	6 W	13 W	37 W	87 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W

FRT 0140 0425

TRENCH HEATER WITH FAN



- Flats, detached houses, offices, administrative buildings
- Suitable for low-temperature systems
- High heating output
- Continuous speed control
- Quiet operation
- Common electricity consumption **2 W/m**
- Using in dry environment



Technical data

Trench heater

Height [H]	140 mm
Width [W]	425 mm
Length [L]	700-4 800 mm in step 100 mm

Heat exchanger

Type	Al-Cu lamellar
Length	L-295 mm
Connection thread	2xG1/2" inner

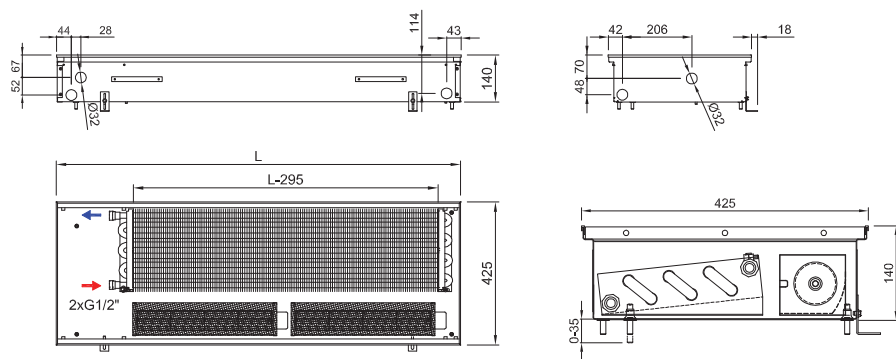
Working conditions

Max. temperature	110 °C
Max. overpressure	1 MPa (10 bar)
Protection	IP 20
Ambient conditions	Temp. T = +2 to +40 °C Humidity Rh = 20 to 70%

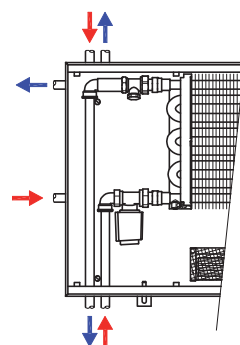
Trench heater standard equipment

Trough	Galvanized steel trough with surface finish and black spray layer inside, black cover plates of connection
Heat exchanger	Al-Cu lamellar exchanger with air vent valve, black painted
Grille	Design walkable grille according the customer's choice (stainless grilles surcharge)
Ledge	Made of anodized aluminium, type and colour according the customer's choice
Fan	Modern tangential fan with 24 V DC EC motor with high efficiency, rotors protection
Assembly elements	Leveling screws for setting up the trough, mounting brackets
Manual	Manual for the progress of work during installation and user manual
Wiring	Electrical wiring diagram of the trench heaters
Mounting board	Cover and the spacer particle board for easy installation
Package	Transport package for protection against damage during transportation and handling

Technical drawing



Connection to heating system

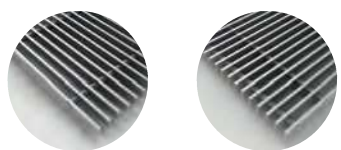


Accessories per order



Variants

Grilles



Transverse roll-up

Linear non-rolling

Peripheral ledge



① Grilles → 6 ② Ledges → 8 ③ Acoustic power → 13 ④ Accessories → 14 ⑤ Hydraulic parameters → 126 ⑥ Wiring → 129

Code example: FRT 0140 0425 4400 C 64 L2 L - 5

Trench heater FRT H=140 mm, W=425 mm, L=4 400 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „64“ stained oak grille, transverse, roll-up, „L2“ peripheral ledge, „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)



Trench heater heating output FRT 0140 0425

Q[W] 75/65/20 °C (ΔT=50 °C)

Temperature exponent 1,1

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	216 W	757 W	1 046 W	1 373 W	1 726 W
800	269 W	1 012 W	1 399 W	1 835 W	2 307 W
900	323 W	1 267 W	1 751 W	2 297 W	2 888 W
1000	376 W	1 657 W	2 290 W	3 004 W	3 777 W
1100	429 W	1 657 W	2 290 W	3 004 W	3 777 W
1200	483 W	2 024 W	2 797 W	3 670 W	4 614 W
1300	536 W	2 279 W	3 150 W	4 132 W	5 195 W
1400	589 W	2 414 W	3 336 W	4 377 W	5 503 W
1500	643 W	2 669 W	3 689 W	4 839 W	6 084 W
1600	696 W	2 942 W	4 066 W	5 333 W	6 706 W
1700	749 W	2 942 W	4 066 W	5 333 W	6 706 W
1800	803 W	3 314 W	4 580 W	6 008 W	7 554 W
1900	856 W	3 699 W	5 112 W	6 706 W	8 432 W
2000	909 W	3 954 W	5 464 W	7 168 W	9 013 W
2100	963 W	4 209 W	5 817 W	7 630 W	9 594 W
2200	1 016 W	4 209 W	5 817 W	7 630 W	9 594 W
2300	1 069 W	4 599 W	6 356 W	8 338 W	10 483 W
2400	1 123 W	4 599 W	6 356 W	8 338 W	10 483 W
2500	1 176 W	4 966 W	6 863 W	9 003 W	11 320 W
2600	1 229 W	5 221 W	7 215 W	9 465 W	11 901 W
2700	1 283 W	5 476 W	7 568 W	9 927 W	12 482 W
2800	1 336 W	5 611 W	7 754 W	10 172 W	12 790 W
2900	1 389 W	5 884 W	8 131 W	10 667 W	13 411 W
3000	1 443 W	5 884 W	8 131 W	10 667 W	13 411 W
3200	1 549 W	6 641 W	9 178 W	12 040 W	15 137 W
3400	1 656 W	6 896 W	9 530 W	12 502 W	15 718 W
3600	1 763 W	7 541 W	10 421 W	13 671 W	17 189 W
3800	1 870 W	7 908 W	10 929 W	14 337 W	18 025 W
4000	1 976 W	8 418 W	11 633 W	15 261 W	19 187 W
4200	2 083 W	8 826 W	12 197 W	16 000 W	20 117 W
4400	2 190 W	9 198 W	12 711 W	16 675 W	20 966 W
4600	2 296 W	9 838 W	13 596 W	17 835 W	22 424 W
4800	2 403 W	10 093 W	13 948 W	18 297 W	23 005 W

75/65/20 °C → 75 °C inlet temperature, 65 °C outlet temp., 20 °C room temp. / Output 90/70/20 °C = ~ 1,22 x 75/65/20 °C / Output 70/55/20 °C = ~ 0,84 x 75/65/20 °C / Heating outputs in accordance with EN 16430 / Not listed heating outputs for lengths per 100 mm steps calculate linearly. Exact values can be found at www.isan.cz

Q[W] 55/45/20 °C (ΔT=30 °C)

Length L [mm]	Speed [-] / Heating output [W]				
	0	1	2	3	4 max.
700	105 W	432 W	596 W	783 W	984 W
800	130 W	577 W	798 W	1 046 W	1 315 W
900	156 W	722 W	998 W	1 310 W	1 647 W
1000	182 W	945 W	1 306 W	1 713 W	2 153 W
1100	208 W	945 W	1 306 W	1 713 W	2 153 W
1200	234 W	1 154 W	1 595 W	2 092 W	2 631 W
1300	260 W	1 299 W	1 796 W	2 356 W	2 962 W
1400	285 W	1 376 W	1 902 W	2 495 W	3 137 W
1500	311 W	1 522 W	2 103 W	2 759 W	3 469 W
1600	337 W	1 677 W	2 318 W	3 040 W	3 823 W
1700	363 W	1 677 W	2 318 W	3 040 W	3 823 W
1800	389 W	1 889 W	2 611 W	3 425 W	4 307 W
1900	414 W	2 109 W	2 914 W	3 823 W	4 807 W
2000	440 W	2 254 W	3 115 W	4 087 W	5 138 W
2100	466 W	2 400 W	3 316 W	4 350 W	5 470 W
2200	492 W	2 400 W	3 316 W	4 350 W	5 470 W
2300	518 W	2 622 W	3 624 W	4 754 W	5 977 W
2400	544 W	2 622 W	3 624 W	4 754 W	5 977 W
2500	569 W	2 831 W	3 913 W	5 133 W	6 454 W
2600	595 W	2 977 W	4 113 W	5 396 W	6 785 W
2700	621 W	3 122 W	4 315 W	5 660 W	7 116 W
2800	647 W	3 199 W	4 421 W	5 799 W	7 292 W
2900	672 W	3 355 W	4 636 W	6 081 W	7 646 W
3000	699 W	3 355 W	4 636 W	6 081 W	7 646 W
3200	750 W	3 786 W	5 233 W	6 864 W	8 630 W
3400	802 W	3 932 W	5 433 W	7 128 W	8 961 W
3600	854 W	4 299 W	5 941 W	7 794 W	9 800 W
3800	905 W	4 509 W	6 231 W	8 174 W	10 276 W
4000	957 W	4 799 W	6 632 W	8 701 W	10 939 W
4200	1 008 W	5 032 W	6 954 W	9 122 W	11 469 W
4400	1 060 W	5 244 W	7 247 W	9 507 W	11 953 W
4600	1 112 W	5 609 W	7 751 W	10 168 W	12 784 W
4800	1 163 W	5 754 W	7 952 W	10 431 W	13 116 W

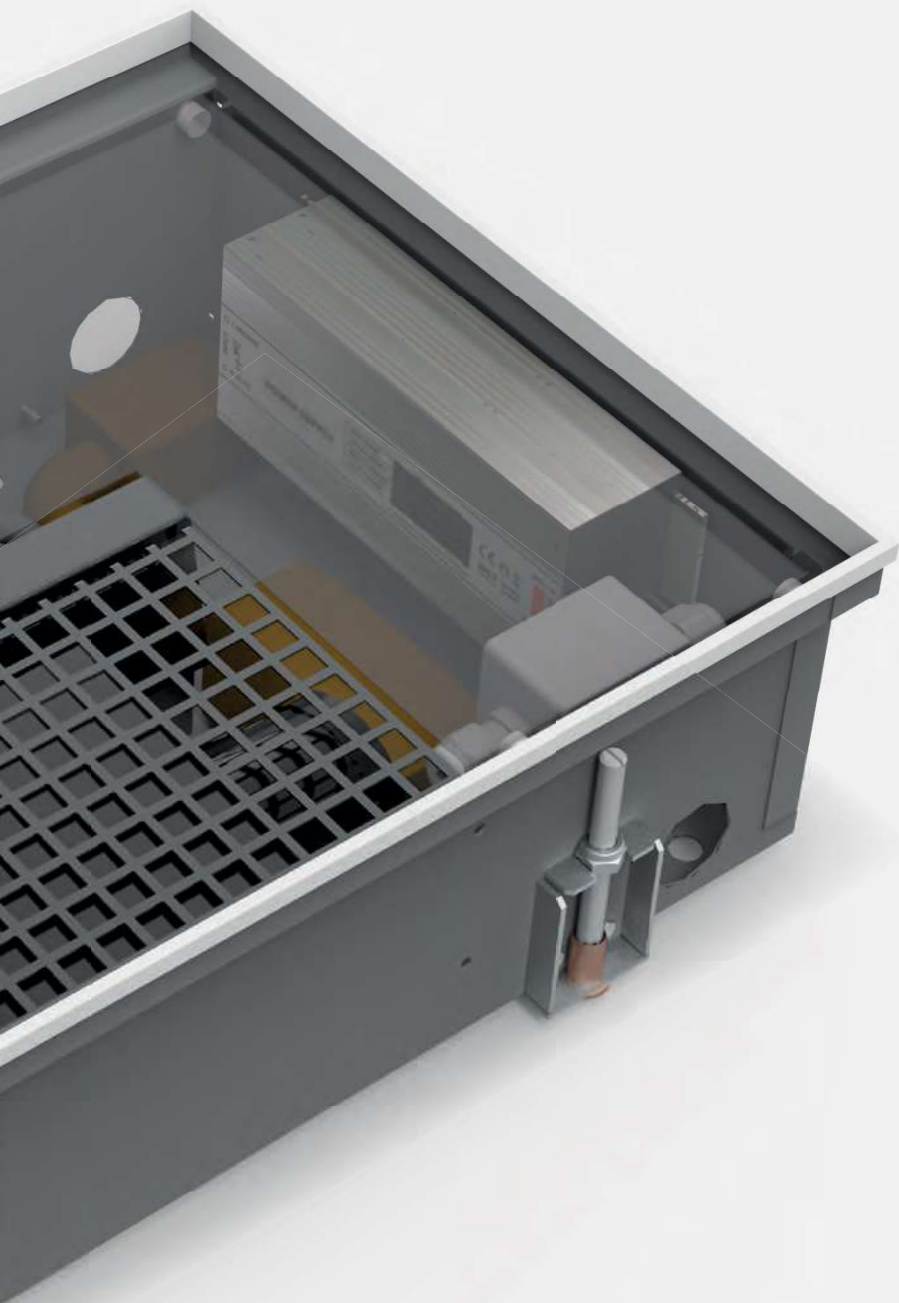
Acoustic power [dB(A)]

Length L [mm]	Speed [-] / Acoustic power [dB(A)]				
	0	1	2	3	4 max.
700	-	25	35	47	58
800	-	26	36	48	59
900	-	27	37	48	59
1000	-	27	37	48	60
1100	-	28	37	49	60
1200	-	28	38	49	61
1300	-	29	38	49	61
1400	-	29	39	50	61
1500	-	29	39	50	62
1600	-	30	39	50	62
1700	-	30	39	50	62
1800	-	30	40	51	62
1900	-	31	40	51	62
2000	-	31	40	51	63
2100	-	31	40	51	63
2200	-	31	41	51	63
2300	-	32	41	51	63
2400	-	32	41	52	63
2500	-	32	41	52	64
2600	-	32	41	52	64
2700	-	33	41	52	64
2800	-	33	42	52	64
2900	-	33	42	52	64
3000	-	33	42	52	64
3200	-	33	42	53	65
3400	-	34	42	53	65
3600	-	34	43	53	65
3800	-	34	43	53	65
4000	-	35	43	54	65
4200	-	35	43	54	66
4400	-	35	44	54	66
4600	-	35	44	54	66
4800	-	36	44	54	66

Fans input power [W]*

Length L [mm]	Number of fans	Speed [-] / Fans input power [W]*			
		1	2	3	4 max.
700	1	1 W	1 W	3 W	7 W
800	1	1 W	1 W	4 W	9 W
900	1	1 W	2 W	6 W	13 W
1000	1	1 W	2 W	7 W	15 W
1100	1	1 W	2 W	7 W	15 W
1200	2	1 W	3 W	8 W	18 W
1300	2	2 W	3 W	9 W	21 W
1400	2	2 W	3 W	9 W	21 W
1500	2	2 W	3 W	10 W	24 W
1600	1	2 W	4 W	11 W	25 W
1700	2	2 W	4 W	12 W	28 W
1800	2	2 W	4 W	13 W	30 W
1900	2	2 W	5 W	14 W	31 W
2000	2	2 W	5 W	15 W	34 W
2100	2	3 W	6 W	16 W	38 W
2200	2	3 W	6 W	16 W	38 W
2300	2	3 W	6 W	17 W	40 W
2400	2	3 W	6 W	17 W	40 W
2500	3	3 W	6 W	18 W	42 W
2600	3	3 W	7 W	20 W	46 W
2700	3	4 W	7 W	22 W	50 W
2800	3	4 W	7 W	21 W	49 W
2900	2	4 W	7 W	22 W	50 W
3000	3	4 W	8 W	22 W	52 W
3200	3	4 W	8 W	23 W	56 W
3400	3	4 W	9 W	25 W	59 W
3600	3	5 W	9 W	27 W	65 W
3800	4	5 W	10 W	30 W	69 W
4000	4	5 W	11 W	31 W	75 W
4200	3	5 W	11 W	31 W	75 W
4400	4	6 W	12 W	33 W	80 W
4600	4	6 W	12 W	35 W	83 W
4800	4	6 W	13 W	37 W	87 W

* Approximate fan input powers / When using electrothermal actuator add in the trench heater's power 3 W



Fan-assisted trench heaters
with installed power supply of 24 V DC

TERMO - FRZ, FDZ

Fan-assisted trench heaters with installed power supply



Advantages

- Easy connection of a higher number of heaters
- Connection at long distances
- Connection with IP67 electrical protection
- Negligible loss of voltage
- Easy incorporation into smart buildings
- Model range identical to that of FRT heaters
- Length **900-4 800 mm** (in step 100 mm)

Areas of use

- Shopping centres, administrative buildings
- Recreation and sport complexes, gyms, wellness
- Conference rooms
- Restaurants, cafés, hotels



For bigger projects where a high number of heaters are controlled simultaneously and individual sums of cabling distances are in tens of metres, it is advantageous to design **FRZ heaters with installed power supplies**.

The network need not be dimensioned upon the electrical output; the heaters are powered from their own power supplies. It also simplifies those projects where it is not clear until the last moment how many heaters there will be in individual rooms (for example depending on floor spaces rented in shopping centres). The connection may be flexibly modified, individual units may be easily separated and completed with a room thermostat.

The range of FRZ models

Height	65 mm	80 mm	90 mm	110 mm	125 mm	140 mm
Width	-	175 mm	175 mm	175 mm	-	-
	-	200 mm	200 mm	200 mm	-	-
	250 mm	250 mm	250 mm	250 mm	250 mm	250 mm
	300 mm	300 mm	300 mm	300 mm	300 mm	300 mm
	-	-	425 mm	425 mm	425 mm	425 mm

Design

A power supply is placed in the trench heater which converts the mains voltage of 230 V AC to a low DC voltage of 24 V DC. Connection safety is ensured by using components with IP67 electrical protection, which can even withstand submersion in water. All elements inside the trench heater - the tangential fan and electro-thermal actuator - work on a safe DC voltage. The same applies to the RTD201 and RTM201 room thermostats.

Code example: FRZ 0090 0250 2400 C 64 L2 L - 5

Trench heater with integrated power supply FRZ H = 90 mm, W = 250 mm, L = 2 400 mm, „C“ Galvanized steel trough with black inside, heat exchanger and inner parts painted black, „64“ stained oak grille, transverse, roll-up „L2“ peripheral ledge „L“ with an overlap, bronze anodized aluminium, „L“ water connection at the left side (when installing the heat exchanger closer to the window, fans to the room), „5“ 24 V DC fans without controller (controller is not needed)

Output

In the output tables of the TERMO FRT trench heaters, parameters of the 200 mm shorter heater should be considered. Because of the high coverage of the exchanger by the fans in each length, the change in performance is generally not significant. The trench heater achieves its initial performance with a slight increase in the fan speed, which is enabled by continuous control of the thermostat.

Example output determination for FRZ 0090 0250 heater, temperature gradient 75/65/20°C →

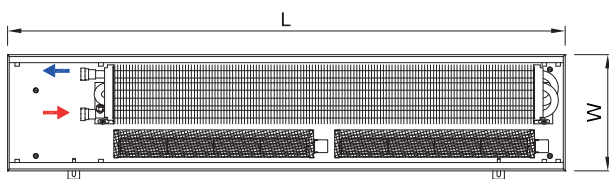
Length L [mm]	Speed [-] / Heating output [W]			
	1	2	3	4 max.
1400	826 W	1 748 W	2 302 W	2 457 W
1500	910 W	1 927 W	2 536 W	2 708 W
1600	991 W	2 098 W	2 762 W	2 949 W
1700	991 W	2 098 W	2 762 W	2 949 W
1800	1 146 W	2 426 W	3 194 W	3 410 W
1900	1 244 W	2 633 W	3 466 W	3 701 W
2000	1 328 W	2 811 W	3 701 W	3 952 W

Assembly

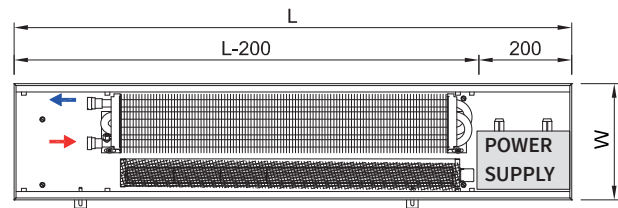
The space required for the installed power supply is 200 mm. For the same trench heater length, the installed elements are therefore identical to the 200 mm shorter FRT trench heater. The installation of the trench heater and its connection to the heating system are the same as with the standard trench heater.

Difference in the installation of interior elements in standard trench heaters and trench heaters with an installed power supply.

STANDARD TRENCH HEATER DESIGN (FRT designation)



TRENCH HEATER WITH INSTALLED POWER SUPPLY (FRZ designation)



Regulation

For the proper function of the trench heaters, control and regulatory elements should be added. The room temperature is assessed by the room thermostat (RTD201, RTM201) which controls the fan speed and the flow of the heating medium through the exchanger. The flow is regulated using the Z-TS24 electrothermal actuator, which opens or closes the Z-TD001 thermostatic valve. The thermostatic valve is installed at the input to the heat exchanger. For the proper adjustment of the flow volume of the heating medium, it is necessary to install and set the Z-RD001 lockshield at the output of the exchanger. If more than 10 trench heaters are installed, the RL10 relay for opening additional actuators is incorporated.

Fans with motors with EC technology are controlled by a voltage of 0 ... 10 V DC, and electrothermal actuators are controlled with a switching voltage of 24 V DC. Such control allows easy integration into buildings with a BMS (Building Management System) central control. When the European KNX standard is used, it is appropriate to control trench heaters with the RTD201KN thermostat with implemented KNX communication.

Control elements of FRZ trench heaters



Digital thermostat **RTD201**



Manual thermostat **RTM201**



Electrothermal actuator **Z-TS24**



Thermostatic valve **Z-TD001**



LockShield valve **Z-RD001**

Further information about accessories may be found in FRT product range on page 14.

Circuit diagram

An alternating voltage of 230 V AC is fed to the trench heater with a power supply. There it is transformed into a safe voltage of 24 V DC. All the elements of the trench heater (fans, electrothermal actuators and the room thermostat) then work with it.

