



## ESF-P Skin-effect heating cable

### Overview:

Jiahong ESF-P Skin-effect heating cable system is a safe, reliable and effective electrical heat tracing solution for medium and long distance pipelines, such as the liquid medium transfer and LNG pipeline of large petrochemical industry site.

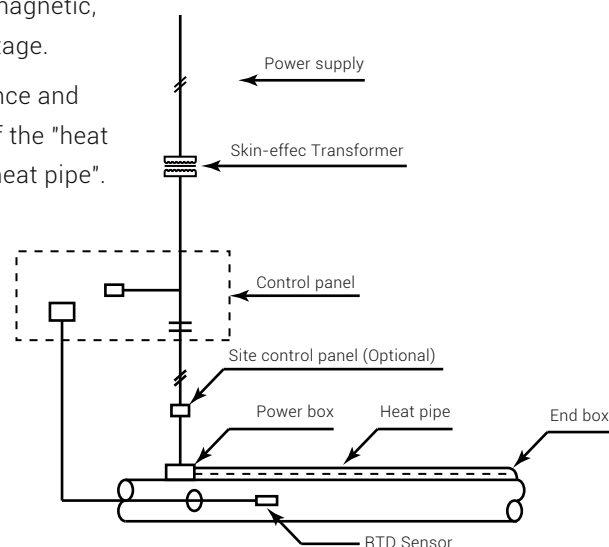
This electrical heat tracing technology has the advantages of high heat tracing efficiency, safety and reliability, long service life, convenient installation and maintenance, and automatic control as well as prefabrication in facility, then it has been gradually popularized and applied in petrochemical industry and other fields in the past several tens of years.

The working principle of skin effect is based on the "skin effect" and "proximity effect" of alternating current. Because carbon steel pipe is extremely ferromagnetic, it will still be produced Significant of skin effect under power frequency voltage.

The heat generated by the system in the "heat pipe" is due to the impedance and the tracer system itself when the current flows back on the inner surface of the "heat pipe", as well as there is no voltage or current on the outer surface of the "heat pipe".

The basement skin-effect heat tracing system is shown in right figure, power system and control system as well as site portion are added to be a completed skin-effect system. The power system is including incoming power and skin-effect transformer; The control portion is including High voltage/Low voltage control panel, protection system, temperature detection system and load balance device; Site portion is including power/end box, heating cable and heating pipe, etc.

Compare with other types of heating tracing system, there has been advantages for skin-effect system.



Series Number	Comparasion	Skin-effect heating cable trace type	Constant power output heating cable trace type	Mineral insulation heating cable trace type	Self-regulating heating cable trace type
1	Trace length	Longest	Longer	Short	Short
2	Quantity of power supply	Fewest	Few	More	Many
3	Unit power output	Higher	Low	Highest	General
4	Installation type	Welding through pipe	Tape band	Stainless steel wire band	Tape band
5	Maximum voltage	<5000Vac	<660Vac	<600Vac	230Vac
6	Maintaince	Convenience	Complicated	Complicated	Complicated
7	Partly heat tracer	Worst	Convenience	Convenience	Convenience
8	Safety	Reliability	General	General	General
9	Construction difficulty	Higher	General	General	General
10	Control requirement	Highest	Higher	Higher	General
11	Life cycle	About 20 Years	5~8Years	5~10Years	3~10Years
12	Buried pipeline	Suitable	Not applicable	Not applicable	Not applicable

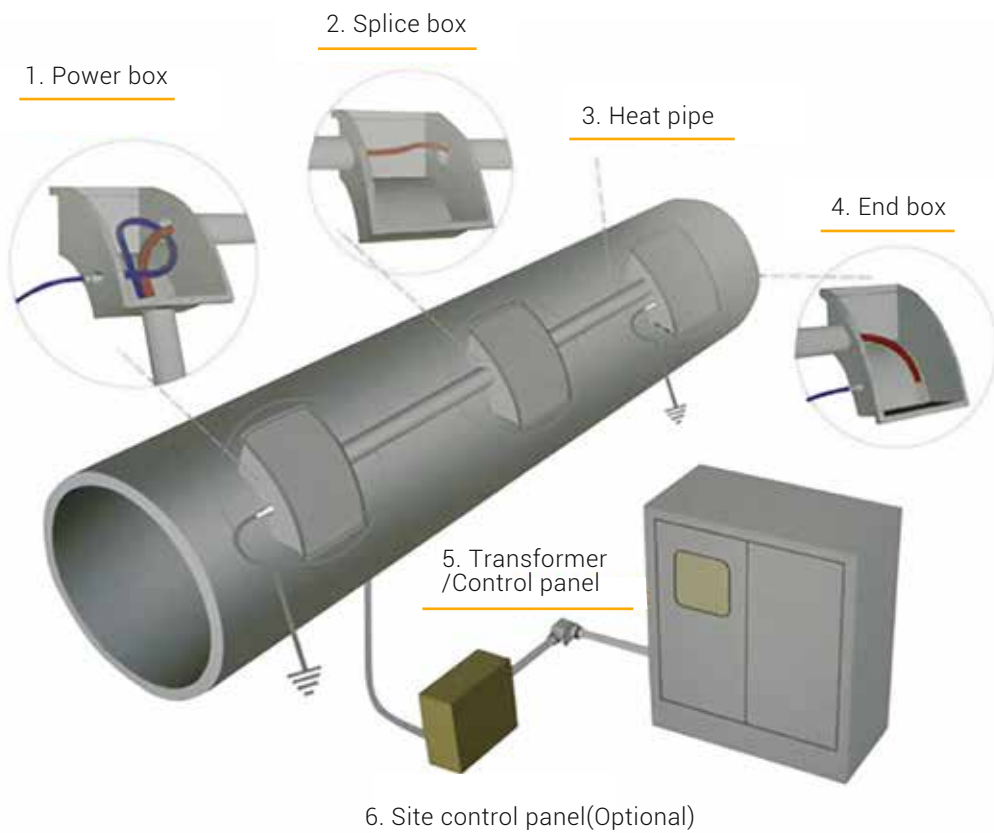
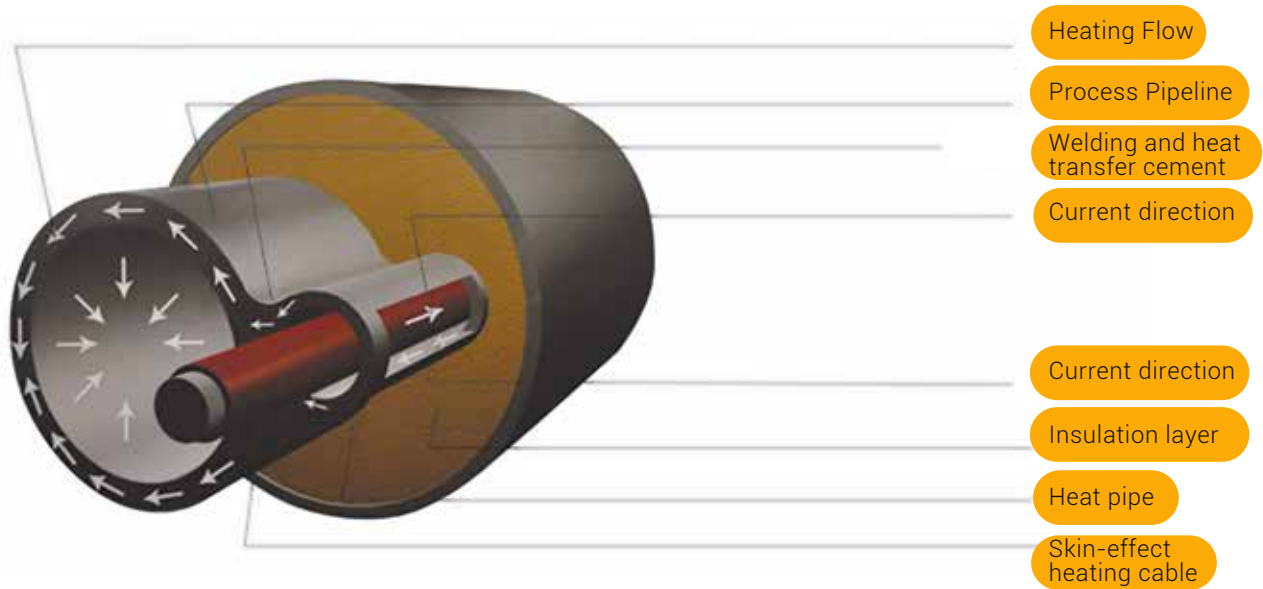


86 Guandou Street, Jiujiang district, Wuhu City, Anhui Province, P.R. China, 241000





## Heat flow sketch map:



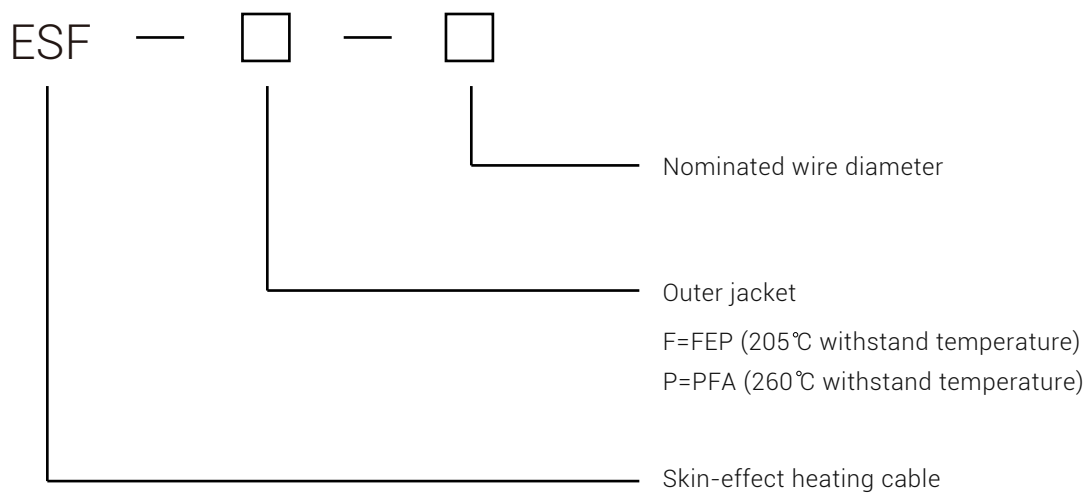
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[www.ahjiahong.com](http://www.ahjiahong.com)



[info@ahjiahong.com](mailto:info@ahjiahong.com)



ESF-P Skin-effect heating cable technical spec						
Type	Conductor material	Conductor cross-section	Maximum voltage	Insulation material	Outer jacket material	Withstand temperature
ESF-P-06	Tinned Copper	6 mm <sup>2</sup>	5 KV	PFA	PFA	260℃
ESF-P-10		10 mm <sup>2</sup>				
ESF-P-13		13 mm <sup>2</sup>				
ESF-P-16		16 mm <sup>2</sup>				
ESF-P-21		21 mm <sup>2</sup>				
ESF-P-25		25 mm <sup>2</sup>				
ESF-P-33		33 mm <sup>2</sup>				
ESF-P-40		40 mm <sup>2</sup>				
ESF-F-06		6 mm <sup>2</sup>		FEP	FEP	205℃
ESF-F-10		10 mm <sup>2</sup>				
ESF-F-13		13 mm <sup>2</sup>				
ESF-F-16		16 mm <sup>2</sup>				
ESF-F-21		21 mm <sup>2</sup>				
ESF-F-25		25 mm <sup>2</sup>				
ESF-F-33		33 mm <sup>2</sup>				
ESF-F-40		40 mm <sup>2</sup>				



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