

ELECTRONIC ENCLOSURE HEATER SERIES

Electronic enclosure heaters are essential to the reliable and efficient operation of all types of indoor and outdoor installations worldwide. Unpredictable weather, the drive for greater reliability and longer maintenance intervals, require that systems are designed to cope with extremes of temperature and humidity. DBK electronic enclosure heater solutions provide a range of standard and custom designed heaters for temperature regulation, frost protection and humidity protection.

Our guiding principals are products with:

- Ease of installation and use
- Efficiency of operation
- Quality of material and performance

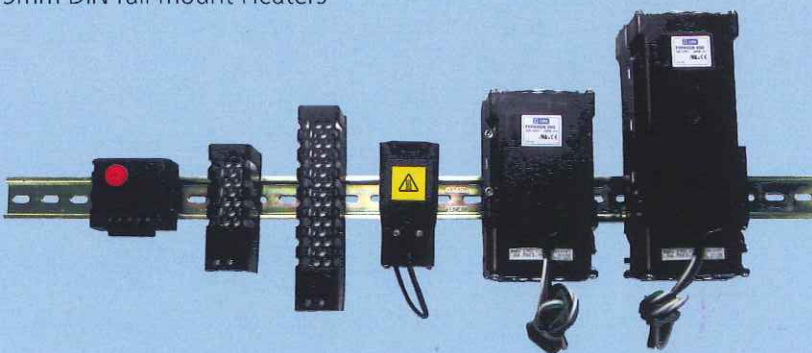
Product types:

- Natural Convection PTC Heating Elements
- 25mm, 40mm, 80mm Axial fan PTC Heating Elements
- Thermostats Hygrostats and Controls

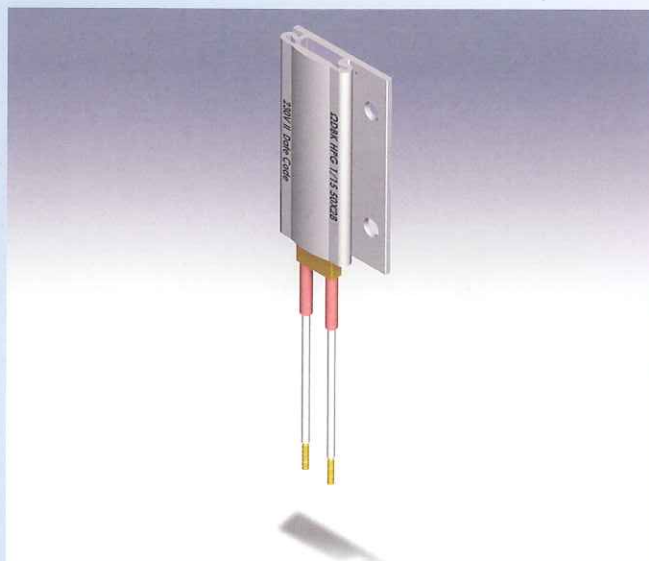
Applications include all major providers of:

- Electrical and electronic control systems
- Power distribution panels and transformer health
- Telecommunications systems
- Parking control systems
- Dispensing and POS systems
- Automated Teller Machines (ATM'S)
- Power generation including wind and solar
- Transportation infrastructure
- Medical imaging

35mm DIN rail mount Heaters



HPG Flange SERIES



Ordering Example

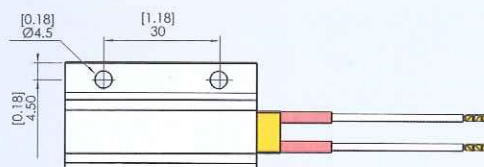
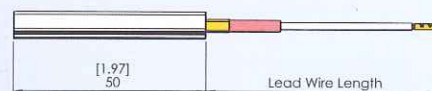
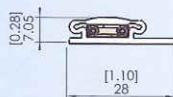
Series Name	HPG Flange
Type Code	HPG 1/15 50X28
Rated Wattage	10W
Heater Voltage 115VAC/ 230VAC/ 24VDC	230V

Features

- Natural convection heating element
- Compact design
- Self regulating, highest power at low ambient temperature
- Fixing via flange with hole for screw mounting (fastener not provided)
- Maximum heater temperature 170°C (338°F)

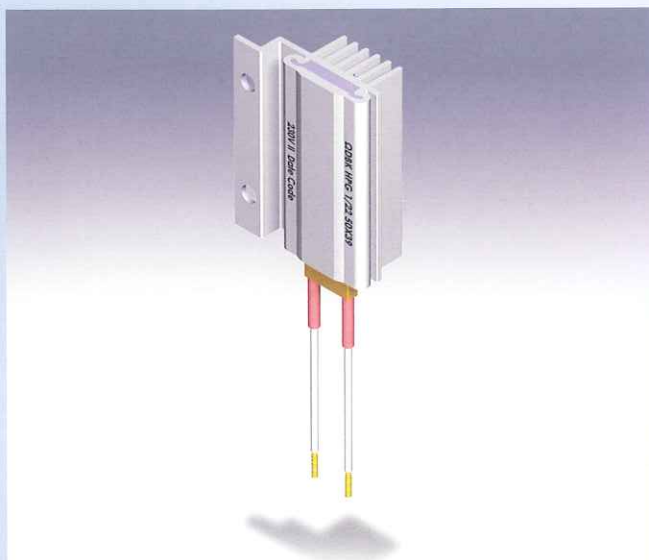
Type	HPG (Natural Convection PTC Heating Element)		
	HPG 1/15 30X28	HPG 1/15 50X28	HPG 1/15 60X28
Nominal Power Output at 10°C (50°F)	8W	10W	13W
Electrical Protection Class	II		
Ingress Protection (EN60529)	IP 20		
Max. Body Temperature (25°C Ambient)	170°C (338°F)		
Operating Temperature Range	-30°C to +70°C (-22°F to +158°F)		
Storage Temperature Range	-40°C to +70°C (-40°F to +158°F)		
Nominal Input Voltage Heating Element	115VAC/ 230VAC/ 24VDC		
Dimensions (crosssection)	28mm X 7mm (1.10" X 0.28")		
Dimensions (length)	30mm (1.18")	50mm (1.97")	60mm (2.36")
Lead Wire Type	Silicone AWG20		
Lead Wire Length	300mm (11.8")		
Wire Termination	Splice Crimp 6mm		
Weight	17g (0.60oz)	21g (0.74oz)	29g (1.02oz)

Example:
HPG 1/15 50X28



DBK Technology Limited

HPG Flange/ Fin SERIES



Type	HPG (Natural Convection PTC Heating Element)		
	HPG 1/22 30X39	HPG 1/22 50X39	HPG 1/22 60X39
Nominal Power Output at 10°C (50°F)	10W	20W	30W
Electrical Protection Class	II		
Ingress Protection (EN60529)	IP 20		
Max. Body Temperature (25°C Ambient)	220°C (428°F)		
Operating Temperature Range	-30°C to +70°C (-22°F to +158°F)		
Storage Temperature Range	-40°C to +70°C (-40°F to +158°F)		
Nominal Input Voltage Heating Element	115VAV/ 230VAC/ 24VDC		
Dimensions (crosssection)	38.5mm X 17.5mm (1.52" X 0.69")		
Dimensions (length)	30mm (1.18")	50mm (1.97")	60mm (2.36")
Lead Wire Type	Silicone AWG20		
Lead Wire Length	300mm [11.8"]		
Wire Termination	Splice Crimp 6mm		
Weight	26g (0.92oz)	36g (1.27oz)	42g (1.48oz)

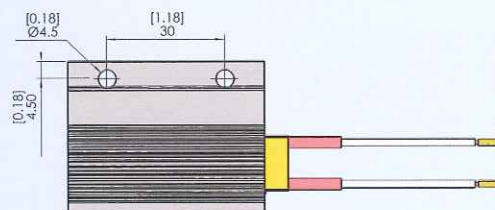
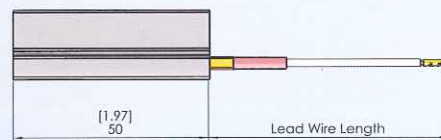
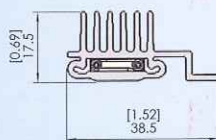
Ordering Example

Series Name	HPG Flange Fin
Type Code	HPG 1/22 50X39
Rated Wattage	20W
Heater Voltage 115VAC/ 230VAC/ 24VDC	230V

Features

- Natural convection heating element
- Compact design
- Self regulating, highest power at low ambient temperature
- Fixing via flange with hole for screw mounting (fastener not provided)
- Maximum heater temperature 220°C (338°F)

Example:
HPG 1/22 50X39



DBK Technology Limited

Blizzard SERIES



Type	Blizzard 50L 20W	Blizzard 200L 30W	Blizzard 50H 40W	Blizzard 200H 65W
Nominal Power Output at 10°C (50°F)	20W	30W	40W	65W
Typical Peak In-rush Current (Arms) 230V/ 115V	0.6 / 0.8	1.8 / 2.2	1.6 / 2.0	5.5 / 5.5
Maximum Body Temperature (30°C Ambient)	74°C (165°F)		105°C (221°F)	
Electrical Protection Class	I			
Ingress Protection (EN60529)	IP 20			
Operating Temperature Range	-30°C to +70°C (-22°F to +158°F)			
Storage Temperature Range	-40°C to +70°C (-40°F to +158°F)			
Nominal Input Voltage	100 - 240 Vac			
Nominal Input Frequency	50 - 60 Hz			
Dimensions (crosssection)	35.5mm x 57mm (1.4" X 2.24")			
Dimensions (length)	97.5mm (3.84")	157.5mm (6.2")	97.5mm (3.84")	157.5mm (6.2")
Connector Block (AWG)	12 - 24			
Weight	100g (3.53oz)	160g (5.64oz)	100g (3.53oz)	160g (5.64oz)

Note: All data are for unit operated in vertical orientation

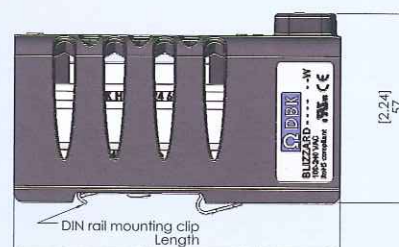
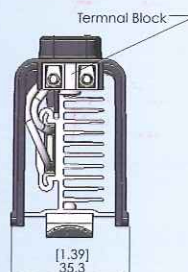
Ordering Example

Series Name	Blizzard
Size 50/200	50
Max Housing Temperature L = Low H = High	L
Rated Wattage	20W

Features

- Dual Voltage 100-240VAC
- UL94V-0 high temperature plastic housing
- Touch safe heater; does not exceed 74°C(165°F) L version/ 105°C(221°F) H version*
- Optimized for low inrush current
- Self regulating, highest power at low ambient temperature
- Easy Connection, finger guard with integrated terminal block
- Fixing - 35mm DIN-rail mount (EN 50022)
- Complies RoHS (EU Directive 2002/95/EC)

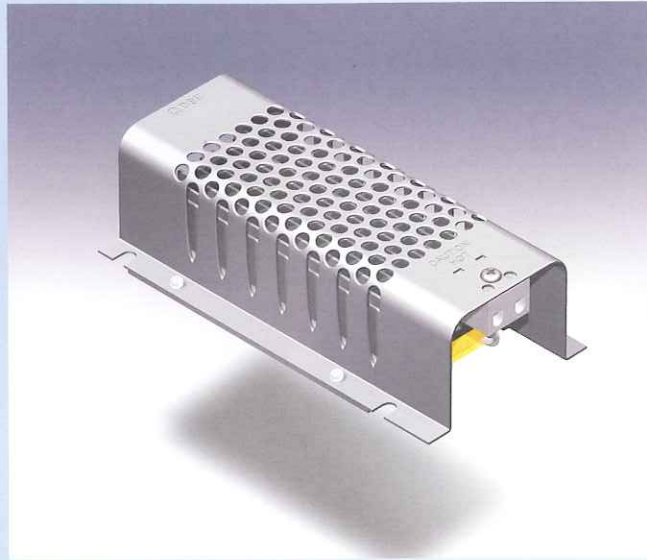
Example:
Blizzard 50



*in compliance with
1) Machinery directive 89/392/EEC according to EN 292-1[Clause 3.6.1]
2) BS 4086:1966 [Clause 3],
3) BS EN 13202:2000 ref. EN 563

DBK Technology Limited

Foehn SERIES



Ordering Example

Series Name	Foehn
Type Code	HPG 4/22 120X44
Rated Wattage	100W
Heater Voltage 115/ 230	230V

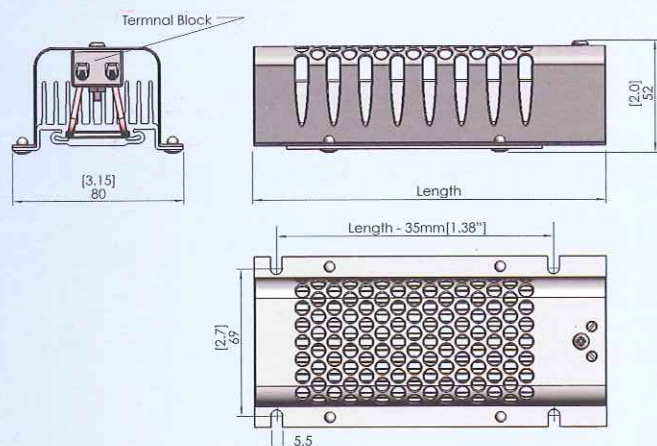
Features

- Robust electrically isolated heating element
- Guard with integrated terminal block
- Self regulating, highest power at low ambient temperature
- Fixing via flange with slot for up to 5mm (3/16") screw (fastener not provided)
- Complies RoHS (EU Directive 2002/95/EC)

Type	Foehn (Natural Convection PTC Heating Element)		
	HPG 3/22 60X44	HPG 4/22 120X44	HPG 6/22 240X44
Nominal Power Output at 10°C (50°F)	50W	100W	150W
Typical Peak In-rush Current 115V/ 230V (Arms)	8 / 6	10 / 5	15 / 11
Electrical Protection Class	I		
Ingress Protection (EN60529)	IP 20		
Max. Body Temperature (25°C Ambient)	220°C (428°F)		
Operating Temperature Range	-30°C to +70°C (-22°F to +158°F)		
Storage Temperature Range	-40°C to +70°C (-40°F to +158°F)		
Nominal Input Voltage Heating Element	115V - 230V		
Nominal Input Frequency	50 - 60 Hz		
Dimensions (crosssection)	80mm X 52mm (3.14" X 2.05")		
Dimensions (length)	105mm (4.1")	165mm (6.5")	285mm (11.2")
Connector Block (AWG)	12 - 24		
Weight	263g (9.28oz)	443g (15.6oz)	778g (27.4oz)

Note: All data are for unit operated in vertical orientation

Example:
Foehn HPG 4/22 120X44



DBK Technology Limited

Typhoon 25 SERIES



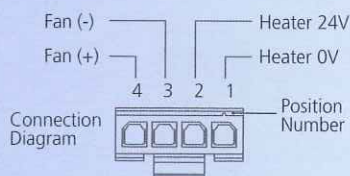
Ordering Example

Series Name	Typhoon 25
Rated Wattage	10W
Fan Input Voltage 12VDC/ 24VDC	12VDC
Heater Voltage 24VAC/ 24VDC	24VAC
Connection Type F = Fly wire C = Molex 43645-0400 (Terminal female 43030 series)	F

Features

- High power in ultra compact design
- Ultra Lightweight
- High temperature plastic construction
- M3 X 0.5 screw inserts for mounting
- Special fan types available upon request
- Separate connection for element and fan
- Complies RoHS (EU Directive 2002/95/EC)

Connector Molex



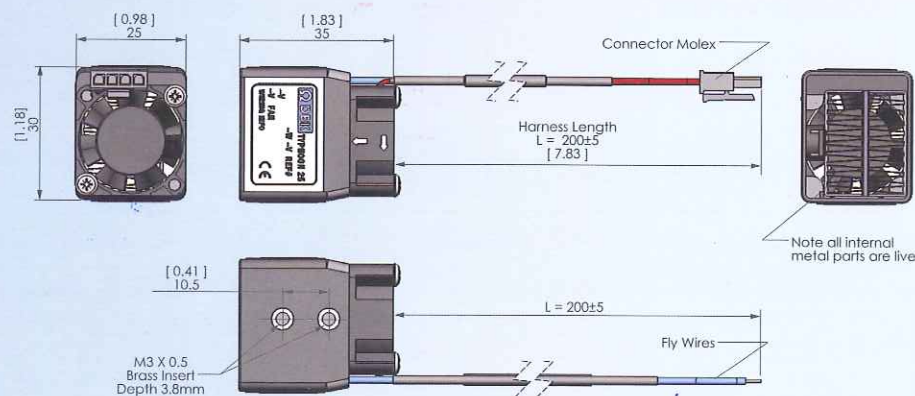
Flywire Connections

Heater 0V	Wire Blue
Heater 24V	Wire Blue
Fan (-)	Wire Black
Fan (+)	Wire Red

Type	Typhoon 25 (25mm Axial fan PTC heating element)					
Nominal Power Output at 10°C (50°F)	10W	20W	40W			
Typical Peak Inrush Current at 24VAC (Arms)	1.2	2.6	5.5			
Nominal Input Voltage Heating Element	24V					
Nominal Input Voltage Fan DC	12	24	12	24	12	24
Max. Body Temperature (25°C Ambient)	40°C(104°F)	50°C(122°F)	90°C(194°F)			
Storage Temperature Range	-40°C to + 70°C (40°F to + 158°F)					
Fan Operating Temperature Range	-10°C to + 70°C (14°F to + 158°F)					
Fan Volumetric Flow Rate at zero static pressure	3.26m³/ hr (1.92CFM)					
Fan Lifetime (mean time until 30% speed reduction, ambient air at 45°C and 66% r.h.)	70,000 hr					
Fan Type	Ball Bearing 12 or 24 VDC					
Dimensions	37X25X30mm (1.44"X0.98"X1.18")					
Weight	30g (1.05 oz)					
Harness Length	200mm (7.87")					
Electrical Protection Class	SKIII/ SELV					
Recommended Fuse Time Delay	(A)	2.5	5	8		

Heaterless
12/ 24

Note: All data are for unit operated in vertical orientation.
When specifying fan select either 12VDC or 24VDC operation.
When specifying heater select either 24VAC or 24VDC operation.



DBK Technology Limited

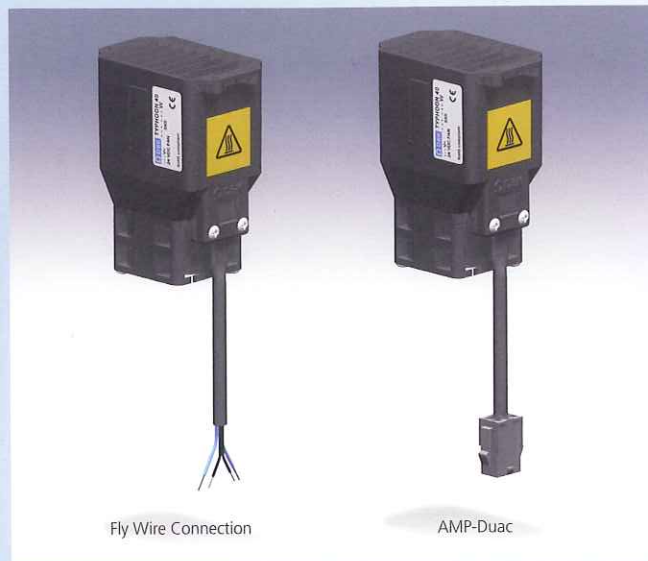


21/F Harbour Commercial Building
122 Connaught Rd.C. Sheung Wan, HK

Phone: +852 2401 1011
Fax: +852 2401 7202

info@dbk-tech.com
www.dbk-group.de

Typhoon 40 SERIES



Ordering Example

Series Name	Typhoon 40
Rated Wattage	100W
Heater Voltage 115/ 230	230V
Connection Type F = Fly Wire C = AMP - DUAC	F

Features

- High power to size ratio
- Stainless steel 35mm DIN-rail mount
- Panel mount 40 X 54mm aperture (1.6" X 2")
- Build in finger guard (flush fitting)
- Compliant RoHS (EU Directive 2002/95/EC)

Type

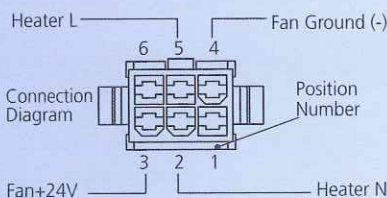
Nominal Power Output at 10°C (50°F)
Nominal Input Voltage Heating Element
Nominal Input Voltage Fan
Max. Body Temperature (25°C ambient)
Fan Operating Temperature Range
Storage Temperature Range
Fan Lifetime (mean time until 30% speed reduction, ambient air at 45°C and 66% r.h.)
Fan Volumetric Flow Rate (at zero static pressure)
Dimensions - Cross Section
Length
Weight
Harness Length
Ingress Protection (EN60529)
Electrical Protection Class

Typhoon 40 (40mm Axial fan PTC heating element)

100W/ 150W/ 200W/ 250W/ 300W/ 350W
115V / 230V
24 VDC
74°C (165°F)
-10°C to + 70°C (14°F to + 158°F)
-40°C to + 70°C (40°F to + 158°F)
70,000 hr
23m ³ / hr (14CFM)
45 X 57mm (1.8" X 2.3")
93mm (3.7")
156g (5.50 oz)
155mm (6.10")
IP20
SK II

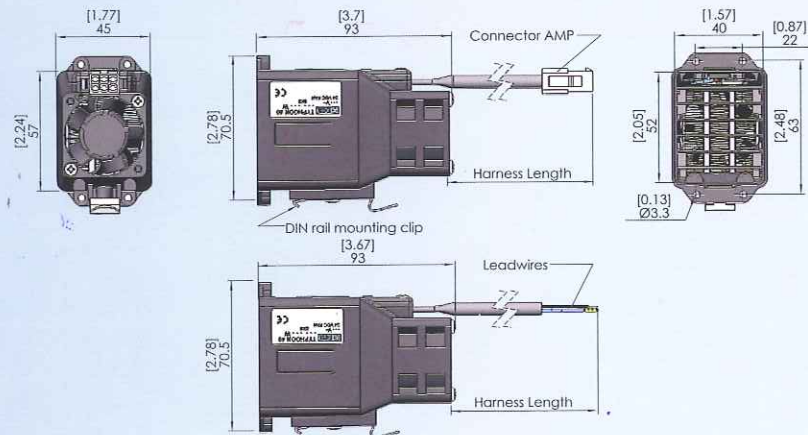
Note: All data are for unit operated in vertical orientation.

Connector AMP-DUAC



Leadwire Connections

Heater	Wire Blue
Heater	Wire Blue
Fan, Ground (-)	Wire Black
Fan, +24V	Wire Red



DBK Technology Limited



21/F Harbour Commercial Building
122 Connaught Rd.C. Sheung Wan, HK

Phone: +852 2401 1011
Fax: +852 2401 7202

info@dbk-tech.com
www.dbk-group.de

Typhoon 300/ 450/600 SERIES



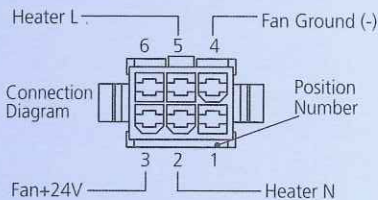
Ordering Example

Series Name	Typhoon 300
Rated Wattage	300W
Heater Voltage 115/ 230	230V
Connection Type F = Fly Wire C = Cord + IEC Connector	F

Features

- Robust electrically isolated heating element
- Simple design and easy to install
- Simple electrical connection (fan and heater combined)
- Fixing - 35mm DIN-rail mount
- Complies RoHS (EU Directive 2002/95/EC)

Cord + IEC Connector



Flywire Connections

230VAC Version

Neutral	Wire Blue
Live	Wire Black
Ground (Fan)	Wire Yellow/ Green

115VAC Version

Neutral	Wire White
Live	Wire Black
Ground (Fan)	Wire Green

Type

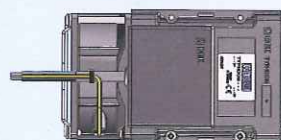
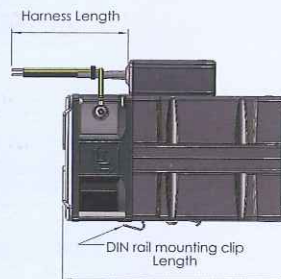
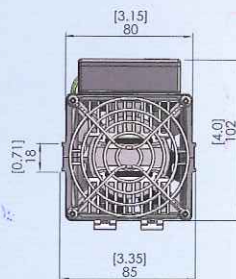
Nominal Power Output at 10°C (50°F)	
Nominal Input Voltage Heating Element	
Typical Peak Inrush Current 115V/ 230V (Arms)	
Nominal Input Frequency	
Max. Body Temperature (25°C ambient)	
Fan Operating Temperature Range	
Storage Temperature Range	
Fan Lifetime (mean time until 15% speed reduction, ambient air at 70°C and 66% r.h.)	
Fan Volumetric Flow Rate	- 50Hz (230 VAC) - 60Hz (115 VAC)
Dimensions - Cross Section Length	
Weight	
Harness Length	
Ingress Protection (EN60529)	
Electrical Protection Class	
Recommended Fuse Time Delay	(A)

(80mm Axial Fan PTC Heating Element)

Typhoon 300	Typhoon 450	Typhoon 600
300W	450W	600W
115V / 230V		
8/6	11/8	15/12
50 - 60Hz		
74°C (165°F)		
-10°C to + 70°C (14°F to + 158°F)		
-40°C to + 70°C (40°F to + 158°F)		
65,000 hr		
40m³/ hr (24CFM)		
50m³/ hr (31CFM)		
85 X 102mm (3.35" X 4.0")		
145mm (5.7")	205mm (8.1")	205mm (8.1")
890g (31.4oz)	1190g (42oz)	1200g (42.3oz)
1000mm (39.4")		
IP20		
SK I		
10	13	16

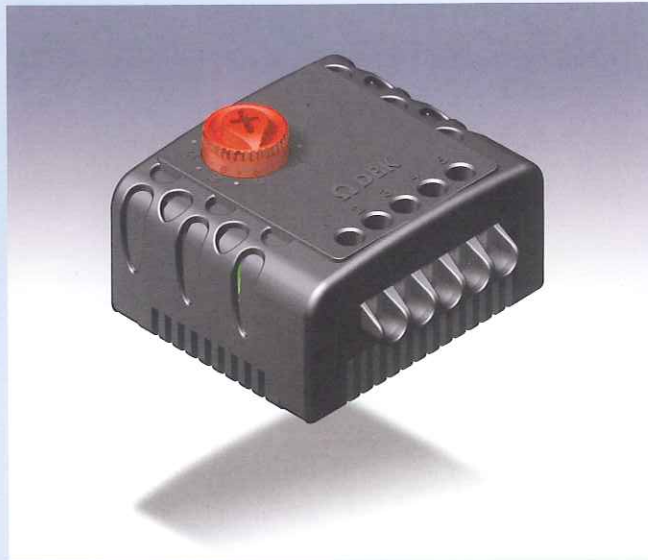
Note: All data are for unit operated in vertical orientation

Example:
Typhoon 300



DBK Technology Limited

TBT Mechanical Thermostat

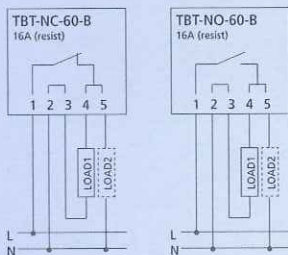


Ordering Example

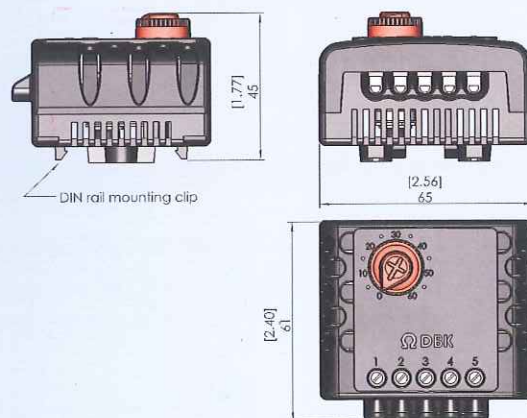
Series Name	TBT
Type Code	
NC - Heating	
NO - Cooling	NC
Temperature Range	
60 - 0 ...60°C	60
Revision	B

Features

- Mechanical Thermostat
- High Switching Capacity
- Bimetal type thermostat with low switching differential (hysteresis)
- Wide Sensing Range 0...60°C



Type	TBT (Mechanical Thermostat)	
	TBT-NC-60-B	TBT-NO-60-B
Knob Color	Red	Blue
Rated Voltage	100V - 240V	
Nominal Input Frequency	50 - 60 Hz	
Switching Capacity	16A (240VAC Resistive Load) / 15A (120VAC Resistive Load)	
Electrical Protection Class	SK I	
Ingress Protection (EN60529)	IP 20	
Tolerance	C ± 4K	
Differential	8 ± 2K	
Storage Temperature Range	-40°C to + 70°C [40°F to 158°F]	
Service Life	> 100,000 cycles	
Dimensions	61mm X 65mm X 45mm [2.4" X 2.56" X 1.77"]	
Fixing	35mm DIN-rail mount (EN 50022)	
Connector Block (AWG)	14 - 20	
Weight	60g [2.12oz]	



DBK Technology Limited

21/F Harbour Commercial Building
122 Connaught Rd.C. Sheung Wan, HK

Phone: +852 2401 1011
Fax: +852 2401 7202

info@dbk-tech.com
www.dbk-group.de

HEATER ENGINEERING

Power requirements for outdoor standalone cabinets [W]

Size - HxWxD (mm)	Volume (m³)	Painted Steel			Stainless Steel			Plastic		
		5°C	10°C	15°C	5°C	10°C	15°C	5°C	10°C	15°C
300X200X155	0.01	6	13	19	5	11	16	4	8	12
380X380X210	0.03	14	28	43	12	23	35	9	18	27
500X500X210	0.05	22	43	65	18	35	53	14	28	41
600X600X210	0.08	29	58	87	24	47	71	18	37	55
760X600X210	0.10	35	71	106	29	58	87	22	45	67
760X760X300	0.17	49	97	146	40	80	119	31	62	93
1000X800X300	0.24	64	127	191	52	104	156	41	81	122
1200X630X400	0.30	71	141	213	58	116	174	45	90	135
1600X630X400	0.40	91	183	274	75	149	224	58	116	174
2000X600X500	0.60	120	241	361	99	197	296	77	153	230
1600X800X500	0.64	118	237	355	97	194	291	75	151	226
1800X1000X400	0.72	140	280	420	115	229	344	89	178	268
2000X800X500	0.80	144	288	432	118	236	354	92	183	275
1800X630X800	0.91	147	294	440	120	240	360	93	187	280
1600X1200X500	0.96	158	315	473	129	258	387	100	201	301
2000X1200X500	1.20	191	382	573	157	314	471	122	244	366
2000X1800X500	1.80	262	524	786	215	430	645	167	334	501

Notes:

- Power indicates heat required to gain temperature difference of 5°C, 10°C and 15°C.
- 5°C above ambient is sufficient for humidity protection in temperate climates, in areas where additional frost protection is required higher heater power is recommended.
- Sizes are standard industrial enclosure sizes.
- Enclosures with adjoining wall or another cabinet on one or more sides should be de-rated.
- Values are for rule of thumb only. Application testing of samples is recommended.

Recommended Heater Solution

Typhoon 25/ HPG	
Blizzard	
Foehn	
Typhoon 40	
Typhoon 300/ 450/ 600	