
Ceramic Vitreous Enameled

RHEOSTATS



DANOTHERM ELECTRIC A/S

LEADING WITHIN PROFESSIONAL POWER RESISTORS

With roots back to 1919, Danotherm Electric A/S is known worldwide for its **qualified design** and production of **high quality** power resistors for the electronic-, the windpower- and the telecommunication industry. With distributors all over the world, Danotherm Electric A/S is ready to provide support and fulfill your demands for power resistors where ever you are.

Danotherm Electric A/S has its main factory in Copenhagen, Denmark. Furthermore a factory in Stargard, Poland and a factory in Milan, Italy.

Danotherm Electric A/S is a member of the Swedish NIBE Industrial Group providing access to all necessary production-, know-how- and sourcing facilities. Therefore Danotherm Electric A/S is able to solve all problems related to power resistors and helping our customers the optimum way.

The product range covers a wide field, from flat-, round- and wire wound resistors over aluminium housed compact brake resistors and Steel Grid Brake Resistors to huge modules constructed of water cooled break resistors. For further information please see all our resistor types here on our webpage www.danotherm.dk.

PRODUCT APPLICATIONS

DANOTHERM PRODUCTS USED IN VARIOUS SOLUTIONS

Danotherm Power Resistors are used in connection with power electronic equipment. Some examples are: snappers, voltage dividers, de-charge resistors and start- or charging resistors.

An important application is brake resistors in connection with frequency converters for motor control. We can supply brake resistors as components for build-in or stand alone units.

Another application is heating elements, if high power solutions are requested or if brake energy can be re-used as heating energy.

DANOTHERM'S CONCEPT

A RELIABLE PARTNER IN YOUR DAILY WORK

Danotherm's concept is to represent the complete problem solver and reliable partner towards customers. With close customer relations and qualified counseling, Danotherm wishes to establish and maintain an optimal relationship to the customers.

Our key words are:

- > Quality
- > Flexibility
 - > Service
 - > Dynamics
 - > Creativity
 - > Economic solutions
 - > On time delivery

QUALITY MANAGEMENT

Quality management is a natural part in the concept of Danotherm. Quality management is incorporated in a way that the most important part of quality management is built on self-control. Each single resistor is measured and controlled before dispatch. The coating is also checked for errors. The entire control process is incorporated at every step in the production to ensure the highest level of quality.

PRODUCT DEVELOPMENT

Naturally product development is a key area for us. Dialogue with the customer and the satisfaction of her/his requirements is an important source of inspiration to us. It is this partnership which enables us to ensure that our customers and markets are always offered optimum solutions of the highest quality.

CERAMIC VITREOUS ENAMELED

RHEOSTATS

12 – 200W

For more than 60 years Danotherm has produced this range of vitreous enameled Rheostats.

With a power range from 12W to 200W it covers most applications.

Below the standard versions are shown but many custom versions like

Off-positions with or without extra lugs

Tappings

Extended shafts

Locking devices and

Tandem and Triplex versions

are supplied



Danotherm has studied the RoHS directive 2002/95/EC in detail, including the Annex pos.7 and the Commission decision of 18 August 2005 Article



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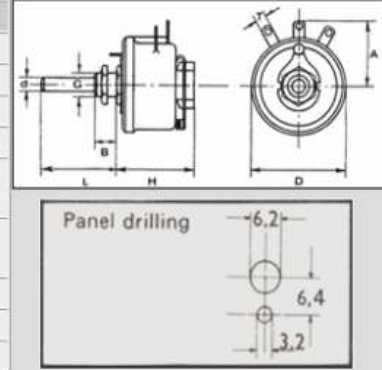
Type 21/23 & 22/23

Average weight:	16g
Rotation 22/23	300 ±10 deg
21/23	270 ± 10 deg
Shaft 22/23	Ø 3mm
21/23	Ø 6mm
Required torque	50 - 390 pcm
Contact 22/23	copper-graphite
Contact 21/23	Silver

Type	Nom. Rating	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
		Rmin	Rmax			
21/23	12	3R9	10K	270	1500	Silver
22/23	12	3R9	10K	300	1500	Copper-graphite

Mechanical Specification:

Type	21/23	22/23
D mm	22	22
H mm	17	17
d mm	6	3 (1/8")
G mm	M8 x 0,75	M6 x 0,75
B mm ± 1	6	6
L mm ± 1	15	15
T mm	3,2	3,2
A mm	16	16
Weight	16	16



Specifications

Power Range	12.5 W @25 °C
De-rating	100%@25°C - 75%@90°C
Environmental	-10°C - 70°C
Resistance Tolerance	± 10%
Max surface temperature	250 °C
Cooling media	Air
Connection	Solder; AMP; Screw.

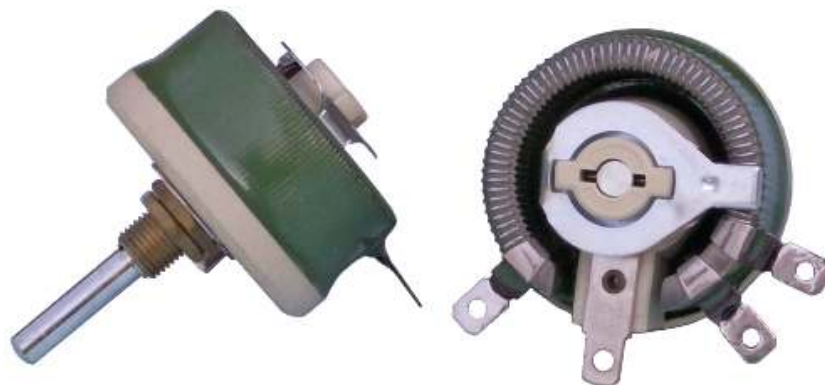
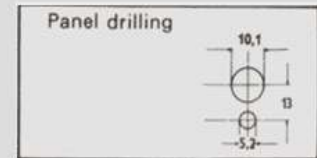
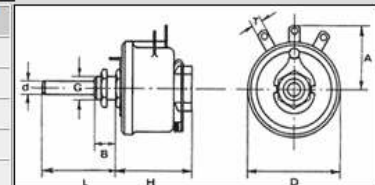
Type 22/35

Power	20W
Average weight:	60g
Rotation	280 ±10 deg
Shaft (standard)	Ø 6mm
Required torque	150 - 500 pcm
Contact (stand.)	copper-graphite

Type	Nom. Rating W	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
		Rmin	Rmax			
22/35	20	1R6	10K	270	2000	Copper-graphite

Mechanical Specification:

Type	22/35
D mm	35
H mm	25
d mm *	6 (1/4")
G mm	M10 x 1
B mm ± 1	9
L mm ± 1	33
T mm	5
A mm	26
Weight	60



Specifications

Power Range	20W @ 25 °C
Derating	100% @ 25 °C - 75% @ 90 °C
Resistance Tolerance	± 10%
Max surface temperature	260 °C
Cooling media	Air
Connection	Solder; AMP; Screw.

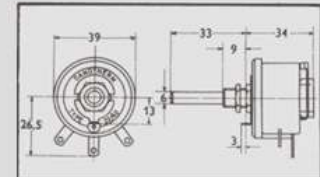
Type 21/40

Power	30W
Average weight:	100g
Rotation	285 ±10 deg
Shaft (standard)	Ø 6mm
Required torque	150 - 500 pcm
Contact (stand.)	Silver

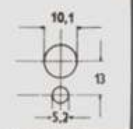
Type	Nom. Rating	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
	W	Rmin	Rmax			
21/40	30	1R0	10K	290	2000	Silver
22/40	30	1R0	10K	290	2000	Copper-graphite

Mechanical Specification:

Type	21/40	22/40
d mm *	6 (1/4")	6 (1/4")
G mm	M10 x 1	M10 x 1
T mm	6,3	6,3
A mm	27	27
Weight	100	100



Panel drilling



Specifications

Power Range	30 W @25 °C
De-rating	100%@25°C - 75%@90°C
Environmental	-10°C - 70°C
Resistance Tolerance	± 10%
Max surface temperature	260 °C
Cooling media	Air
Connection	Solder; Screw; AMP.

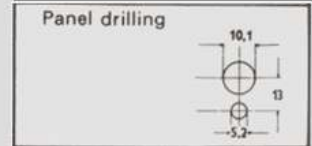
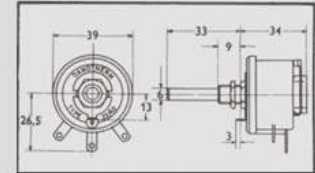
Type 22/40

Power	30W
Average weight:	100g
Rotation	285 ±10 deg
Shaft (standard)	Ø 6mm
Mounting	10 X 1 MG bushing
Required torque	150 - 500 pcm
Contact (stand.)	copper-graphite

Type	Nom. Rating	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
		Rmin	Rmax			
21/40	30	1R0	10K	290	2000	Silver
22/40	30	1R0	10K	290	2000	Copper-graphite

Mechanical Specification:

Type	21/40	22/40
d mm *	6 (1/4")	6 (1/4")
G mm	M10 x 1	M10 x 1
T mm	6,3	6,3
A mm	27	27
Weight	100	100



Specifications

Power Range	30 W @25 °C
De-rating	100%@25°C - 75%@90°C
Environmental	-10°C - 70°C
Resistance Tolerance	± 10%
Max surface temperature	260 °C
Cooling media	Air
Connection	Solder; Screw; AMP.

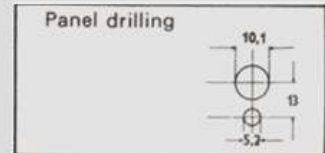
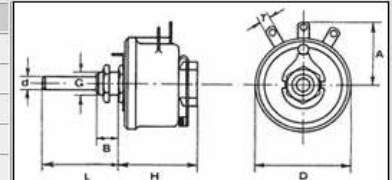
Type 22/50

Power	50W
Average weight:	120g
Rotation	285 ±10 deg
Shaft (standard)	Ø 6mm
Mounting	10 X 1 MG
Required torque	250 - 1000 pcm
Contact (stand.)	copper-graphite

Type	Nom. Rating W	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
		Rmin	Rmax			
22/50	50	1R0	10K	290	2000	Copper-graphite

Mechanical Specification:

Type	22/50
D mm	51
H mm	37
d mm	6 (1/4)
G mm	M10 x 1
B mm ± 1	9
L mm ± 1	33
T mm	6,3
A mm	32
Weight	115



Specifications

Power Range	50 W @ 25 °C
De-rating	100%@25°C - 75%@90°C
Environmental	-10°C - 70°C
Resistance Tolerance	± 10%
Max surface temperature	250 °C
Cooling media	Air
Connection	Solder; AMP; Screw.

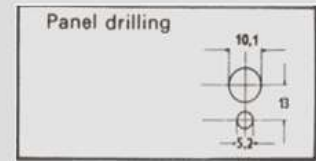
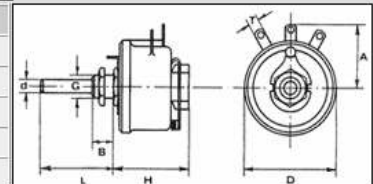
Type 22/80

Power	100W
Average weight:	300g
Rotation	285 ±10 deg
Shaft (standard)	Ø 6mm
Mounting	10 X 1 MG
Required torque	300 - 2000 pcm
Contact (stand.)	copper-graphite

Type	Nom. Rating W	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
		Rmin	Rmax			
22/80	100	R6	10K	290	2500	Copper-graphite

Mechanical Specification:

Type	22/80
D mm	78
H mm	46
d mm	6 (1/4")
G mm	M10 x 1
B mm ± 1	9
L mm ± 1	33
T mm	10
A mm	51
Weight	275



Specifications

Power Range	100W @ 25 °C
De-rating	100% @ 25°C - 75% @ 90°C
Environmental	-10°C - 70°C
Resistance Tolerance	± 10%
Max surface temperature	310 °C
Cooling media	Air
Connection	Solder; Screw.

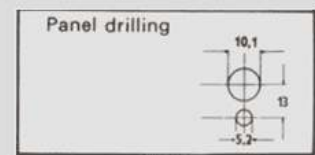
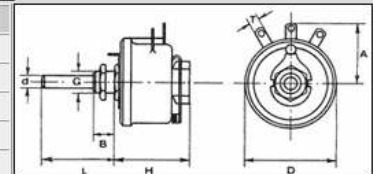
Type 22/120

Power	200W
Average weight:	700g
Rotation	285 ±10 deg
Shaft (standard)	Ø 6mm
Mounting	10 X 1 MG
Required torque	300 - 3000 pcm
Contact (stand.)	copper-graphite

Type	Nom. Rating W	Resistance Range		Rotation Angle ±10° DEG	Test Voltage AC 50 Hz V	Wiper Contact Material
		Rmin	Rmax			
22/120	200	1R6	10K	290	2500	Copper-graphite

Mechanical Specification:

Type	22/120
D mm	115
H mm	50
d mm *	6 (8)
G mm	M10 x 1
B mm ± 1	9
L mm ± 1	33
T mm	10
A mm	27
Weight	665



Specifications

Power Range	200W @ 25 °C
De-rating	100%@25°C - 75%@90°C
Environmental	-10°C - 70°C
Resistance Tolerance	± 10%
Max surface temperature	310 °C
Cooling media	Air
Connection	Solder; Screw.