

Medium and High voltage



Type	Power range	Voltage levels	Termination		Protection class			
			Box	Stud	IP00	IP20	IP23	IP44
NER	Please contact Danotherm		X	X	X	X	X	X
Filter	Please contact Danotherm		X	X	X	X	X	X
Brake	Please contact Danotherm		X	X	X	X	X	X
Load banks	Please contact Danotherm		X	X	X	X	X	X

Rail Applications



Type	Power range	Termination		Protection class		
		Box	Stud	IP00	IP20	
Filter	Please contact Danotherm		X	X	X	X
Brake	Please contact Danotherm		X	X	X	X

Visit [www.danotherm.dk](http://www.danotherm.dk) for more information  
or sent us an E-mail to [info@danotherm.dk](mailto:info@danotherm.dk)

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DAN EN 18.5058.R1  
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The Power Resistor Overview

**All power levels**  
- From 17 W to 2,2 MW

**All voltage levels**  
- Upto 72,5 kV

**All protection ratings**  
- From IP00 to IP66

**Many different technologies**  
- Wire wound  
- Aluminum housed  
- Cement coated & Vitreous Enameled  
- Axial  
- Steel grid  
- Steel tube  
- Thick film

**Customer resistance value**  
- From 5 mohm to 1 Mohm

**For all purposes**  
- Braking  
- Energy dump  
- Charge & discharge  
- Filter  
- Snubbers  
- Balance  
- Adjusting

**For all cooling medias**  
- Liquid  
- Air (passive/forced and for heatsink mount)

# A World of Resistors...

## Passive Air Cooled



BI-ALPHA / CC(H/R)



CA(V/H/R) / CB(V/H/R)



CBS / CBT / CMQ / CVS / HVBS

Type	Power range		Voltage ratings [VDC]			Termination		Protection class				Appr.
	Continuous	10 s square-pulse each 120 s	850	1,4 k	4,2 k	Box	DIN term.	IP00	IP20	IP54	IP65	
BI-ALPHA 4-6	45 W - 175 W	140 W - 760 W	x									
CCH / CCR	80 W - 570 W	800 W - 4,6 kW	x							x	x	x
CAH / CAV	60 W - 220 W	320 W - 2,5 kW	x							x		x
CAR	105 W - 410 W	330 W - 2,8 kW	x			x		x		x	x	x
CBH / CBV	85 W - 330 W	0,9 kW - 4,3 kW	x	x						x	x	x
CBR	280 W - 1,7 kW	1,8 kW - 14,3 kW	x	x		x		x	x	x	x	x
CBS / CBT	410 W - 12 kW	11 kW - 640 kW		x		x	x	x	x	x	x	x
CMQ	800 W - 14 kW	16 kW* - 1,1 MW*		x		x	x	x	x	x		x
CVS	2 kW - 14,7 kW	83 kW* - 1,2 MW*		x		x	x	x	x	x		x
HVBS	850 W - 3,2 kW	41 kW* - 470 kW*			x			x		x		

All types can be delivered with cable and IP50  
\*Only single pulse



GRT, Steel Tube



PCG, Steel Tube



HVB, Aluminum housed

Type	Power range		Voltage ratings		Termination		Protection class	
	Continuous	5 s square-pulse each 120 s	1,4 kVDC	4,5 kVDC	Cable	Box	IP65	IP66
GRT, Steel tube	3 kW - 32,4 kW	NA	x			x	x	x
PCG, Steel tube	1 kW - 6 kW	NA	x			x	x	
HVB, Aluminum housed	600 W - 1 kW	30 kW - 114 kW		x	x		x	



Ceramic tubes



SIGMA, Ceramic Tube



Steel Grid

Type	Power range		Termination				Protection class				Appr.	
	Continuous	Stud	Box	Screw	Sold	AMP	IP00	IP20	IP23	IP44		UL
ZRF / ZBF / ZRV / ZRI / ZFF Ceramic Tubes, Cement Coated	17 W - 1,2 kW			x	x	x	x					
GRF / GBF / GRV / GRI / GFF Ceramic tubes, Vitreous Enameled	17 W - 487 W			x	x	x	x					
SIGMA, Ceramic tube, Cement Coat.	180 W - 5 kW		x					x				x
Steel Grid	500 W - 120 kW	x	x				x	x	x	x		



HSD / HSF / HSP / HSH



PR, Thick Film



CS / SR Axial



RB, Aluminum Housed

Type	Power range	Termination						Protection class	
	Continuous	Cable	Sold	Screw	Stud	AMP	PCB	IP00	IP50
HSD / HSF / HSP / HSH	25 W - 330 W	x	x	x		x		x	x
PR, Thick Film (for heat sink)	100 W - 600 W			x				x	
CS / SR, Axial	2 W - 15 W			x			x	x	
RB, Aluminum Housed	12 W - 250 W		x	x	x	x		x	

## Liquid Cooled



CBW, Aluminum Housed



WHDN, Steel Tube



WHHB / WHB / WHBS

Type	Power range		Voltage rating		Termination				Protection class				
	Continuous	1,4 kVDC	6,6 kVAC	Cable	Box	DIN term.	Screw	IP00	IP50	IP54	IP65	IP66	
CBW, Alu. Housed	860 W - 25,5 kW	x		x	x	x		x	x	x	x		
WHDN, Steel Tube	40 kW - 1,4 MW	x				x					x	x	
WHHB	Up to 25 kW		x			x			x		x		
WHB	6 kW - 23 kW	x				x	x	x			x		
WHBS	6 kW - 100 kW	x		x	x		x	x		x	x	x	

## Forced Air Cooled



TRV, Steel Tube



Steel Grid, Vertical



Steel Grid, Horizontal

Type	Power range	Termination		Protection class			
	Continuous	Box	Stud	IP20	IP23	IP65	IP66
TRV, Steel Tube - Horizontal flow	50 kW - 275 kW	x				x	x
Steel Grid - Vertical flow	Up to 2,2 MW	x	x	x	x		
Steel Grid - Horizontal flow	Up to 2,2 MW	x	x	x	x		