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TECHNOLOGY GROUP

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Find the *Danotherm ZRF 55/600 082* at our website: *Click HERE*

WIREWOUND POWER RESISTORS

Vitreous Enamelled and Cement Coated



DANOTHERM

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



GRF



GRV



GBF



GBF

Tablel 1, Electrical Specifications

DANOTHERM TYPE	NOMINAL RATING T=350° @ 25ºC W	CRITICAL VOLT V	RES. k	RMIN ±15% ZRF/I m	±10% GRF ZRF	ZBF m	RMAX GRF ZRF k	GRV ZRV k	GRI ZRI	ZBF	PREF.
GRF/ZRF 10/44	**17**	270	4,2	56	0,8	-	8	1,8	22	2	P
GRF/ZRF 10/55	**22**	430	8,4	100	0,6	-	12	2,7	33	3	
GRF/ZRF 10/63	**25**	550	12	100	0,6	-	18	3,9	47	3	P
GRF/ZRF 12/51	**24**	370	5,7	47	1	-	12	3,3	39	3	
GRF/ZRF 12/63	**30**	550	10	56	1	-	22	4,7	56	5	P
GRF/ZRF 12/76	**36**	750	15	82	1	-	27	5,6	68	6	
GRF/ZRF 12/102	**48**	1200	30	82	1	-	47	8,2	120	10	P
GRF/ZRF 13/51	**28**	370	4,8	56	1	68	18	3,6	47	3	P
GRF/ZRF 13/63	**32**	550	9,4	56	1	100	22	5,6	47	5	P
GRF/ZRF 13/100	**52**	1100	23	82	1	220	47	10	120	10	P
GRF/ZRF 15/51	**30**	370	4,5	56	1	68	18	3,3	47	3	
GRF/ZRF 15/63	**38**	550	7,9	56	1	100	27	5,6	56	6	P
GRF/ZRF 15/76	**45**	750	12	82	1	150	33	6,8	68	8	
GRF/ZRF 15/100	**60**	1100	20	82	1	220	58	12	120	12	P
GRF/ZRF 20/50	**40**	360	3,2	56	0,3	33	22	4,7	47	4	
GRF/ZRF 20/75	**60**	730	8,8	100	0,3	75	47	10	100	8	
GRF/ZRF 20/100	**78**	1100	15	220	0,3	120	56	15	150	12	P
GRF/ZRF 20/140	**100**	1700	28	220	0,3	180	82	22	220	22	P
GRF/ZRF 20/165	**120**	2100	36	220	0,5	220	100	27	280	27	P
GRF/ZRF 20/267	**200**	3600	64	220	1	390	150	47	470	47	P
GRF/ZRF 24/165	**150**	2100	29	220	1	180	100	33	270	27	P
GRF/ZRF 30/75	**85**	730	6,2	120	1	39	39	15	120	12	
GRF/ZRF 30/100	**110**	1100	11	180	1	68	56	22	180	18	P
GRF/ZRF 30/133	**150**	1600	17	270	1	100	78	33	220	27	P
GRF/ZRF 30/152	**170**	1900	21	330	1	120	82	39	270	33	P
GRF/ZRF 30/156	**175**	2000	22	330	1	120	82	42	270	33	P
GRF/ZRF 30/165	**185**	2100	23	330	1	150	100	42	330	39	
GRF/ZRF 30/200	**225**	2600	30	390	1	150	120	47	420	42	P
GRF/ZRF 30/215	**245**	2900	34	470	1	180	150	56	470	47	
GRF/ZRF 30/250	**275**	3400	42	560	1	220	150	68	560	56	
GRF/ZRF 30/265	**300**	3600	43	560	1	220	180	68	560	68	P
GRF/ZRF 30/330	**375**	4600	56	680	1	270	180	82	750	75	P
ZRF 45/370	**600**	5200	45	1	1		200	-	1000	120	
ZRF 55/100	**180**	800	3,5	150	1	120	47	-	180	18	P
ZRF 55/150	**250**	1200	5,7	300	1	270	56	-	270	39	P
ZRF 55/210	**330**	1900	10	560	1	560	75	-	330	47	P
ZRF 55/290	**450**	2700	16	820	1	680	100	-	470	68	P
ZRF 55/300	**450**	2800	17	1000	1	820	100	-	470	68	
ZRF 55/390	**600**	3700	22	1200	1,2	1000	150	-	620	100	P
ZRF 55/400	**600**	3800	24	1200	1,5	1000	150	-	620	100	
ZRF 55/490	**800**	4700	27	1500	1,5	1200	180	-	750	120	P
ZRF 55/500	**800**	4800	28	1500	2,2	1200	180	-	750	120	
ZRF 55/590	**1000**	5700	32	1500	2,2	1500	200	-	1000	150	P

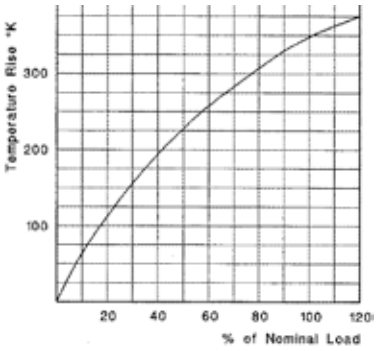
Vitreous Enamelled and Cemented Power Resistors from 15W to 1000W

Danotherm Electric A/S was founded in Copenhagen in 1919. We manufacture high performance reliable electrical components and systems. Our products can be found in the most professional sectors of the industry.

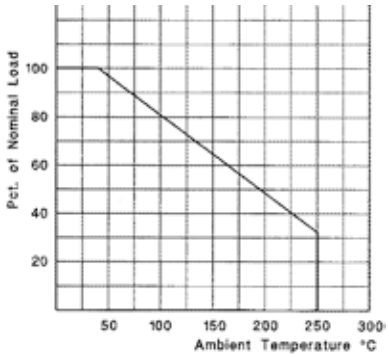
Specifications:
All-welded construction.
Tolerance:
R>1 : ±5% or 10 % (se table1)
Power rating: Based on 25°C
Temperature Range: -50°C – 250°C
Temperature coefficient:
Low ohm: 200 (400ppm)/°.
Medium–high ohm: <100ppm/°.
Dielectric voltage: Based on indicated creepage distance (k in table 2) from terminals to mounting bracket.
5mm: 1000V; 6mm 1200V.
Other values than indicated are possible.
Insulation Resistance: > 10^2M at 500V.
Overload:
General: 10 X in 5 seconds.

Custom designed resistors and assemblies are available on request. Details like wire configuration, creepage distance and inductance can be specified by the customers. The choice between more than 50 sizes guarantee our customer that the best resistor configuration can be found within our programme.

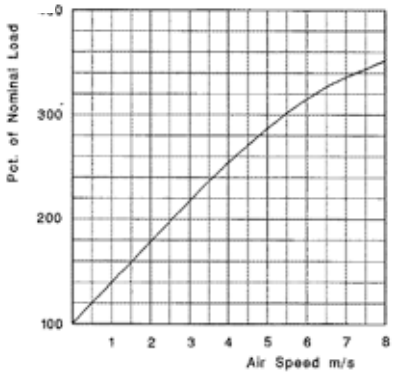
Thermal models are available
Each resistor can be provided with data sheets including an individual thermal model for simulating temperature rises during load.
Please contact our sales department or email: danotherm@danotherm.dk.



Temperature Rise at constant Load



Derating: 100%at 25ºC to 0% at 350ºC



Overload at Forced Air Cooling

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ZRF	ZRV	ZBF	ZBV

Our standard programme includes:
Fixed or Adjustable, Round or Oval types, types with Solder- Screw- or Snap-On Terminals. Resistors with *corrugated wire* for extra high demands on surge or *pulse* load.

Materials:
Core:
Diameter 10-30 mm: Steatite C221
Porcelain C110, only certain types.
Diameter 45mm: Porcelain C410
Diameter: 55mm: Corderite C520

Steatite C221 is the optimal choice of ceramic bases material for temperatures below 350 -400ºC. It has high mechanical strength and excellent DC stability. If higher temperatures can be expected porcelain C110 can be used.
For our large resistor types, corderite C520 are used due to its very high stability to temperature changes.

Terminals: FeNi42 ; has an equivalent temperature expansion coefficient likes Steatite. FeNi42. Can be soldered when it is clean from oxydation and is relatively stainless.

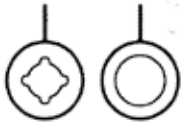
Wire:
Low Ohms: CuNi10 (T.C: 400ppm)/ CuNi23Mn (T.C: 200ppm)
Medium Ohms:
CuNi44 (T.C. < 80ppm)
High Ohms: NiCr8020; CrAlFe, (T.C. <100ppm)

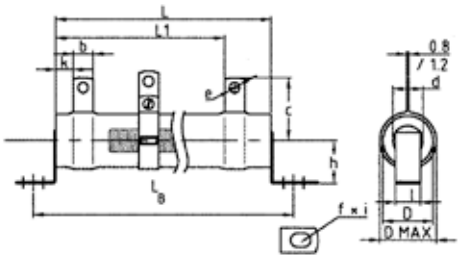
Coating:
Vitreous Enamel, excellent protection to thin wires. All Vitreous Enamelled Resistors meet the IEC 68-2-3 Ca. 56 days. Vitreous enamel can only be used on Steatite.
$AlPO_4$ is the best choice regarding high pulse load capability and high temperature stability.

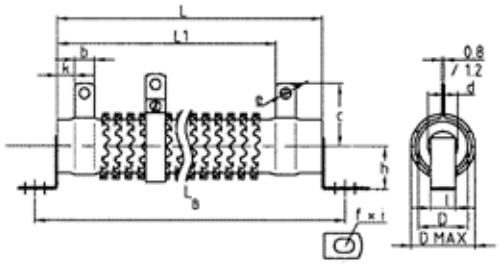
Table 2, Mechanical Specifications

DANOTHERM TYPE	Profile	D mmØ	L mm	L Tol. ±mm	d mmØ	D max mm	b L, S/A mm	e mmØ	c * ±2 mm	k min mm	L1 ±1 L, S/A mm	LB mm	f x i mm	Weight Typical g
GRF/ZRF 10/44	1		44	0,7			4,8/6,3	3,2		5	32,3/30,8	58		11
GRF/ZRF 10/55	1	10	55	0,9	6	13	4,8/6,3	3,2	19	5	43,1/41,6	69	3,2X6	14
GRF/ZRF 10/63	1		63	1,2			4,8/6,3	3,2		5	50,9/49,4	77		15
GRF/ZRF 12/51	1		51	0,9			4,8/6,3	3,2		5	39,2/37,7	65		19
GRF/ZRF 12/63	1	12	63	1,2	5,5	16	4,8/6,3	3,2	16,5/21	5	50,9/49,4	77	3,2X6	22
GRF/ZRF 12/76	1		76	1,4			4,8/6,3	3,2		5	63,7/62,2	90		26
GRF/ZRF 12/102	1		102	2,0			4,8/6,3	3,2		5	89,2/87,7	116		34
GRF/ZRF 13/51	1		51	0,9	8,3		4,8/6,3	3,2		6	38,2/36,7	-		20
GRF/ZRF 13/63	1	13	63	1,2	5,5	17	4,8/6,3	3,2	15,5 / 20	6	49,4/48,4	-	-	24
GRF/ZRF 13/100	1		100	1,8	5,5		4,8/6,3	3,2		6	86,2/84,7	-		40
GRF/ZRF 15/51	1		51	0,9			4,8/8	3,2		6	38,2/35	65		22
GRF/ZRF 15/63	1		63	1,2			4,8/8	3,2		6	49,4/46,7	77		26
GRF/ZRF 15/76	1	15	76	1,4	10	19	4,8/8	3,2	22	6	62,7/59,5	90	4,2X8	30
GRF/ZRF 15/100	1		100	1,8			4,8/8	3,2		6	86,2/83	114		40
GRF/ZRF 20/50	1		50	0,8			4,8/8	3,2		6	37,2/34	66		40
GRF/ZRF 20/75	1		75	1,4			4,8/8	3,2		6	61,7/58,5	91		55
GRF/ZRF 20/100	1	20	100	1,8	12	24	8	4,2	22/25	6	83	116	5,5X8	70
GRF/ZRF 20/140	1		140	2,5			8			6	122,2	156		100
GRF/ZRF 20/165	1		165	3,0			8			6	146,7	181		115
GRF/ZRF 20/267	1		267	4,6			8			6	246,7	283		190
GRF/ZRF 24/165	1		165	3,0			8			6	146,7	181		155
GRF/ZRF 30/75	1		75	1,4			8			6	58,5	93		105
GRF/ZRF 30/100	1;3		100	1,8			8			6	83	118		135
GRF/ZRF 30/133	1;3		133	2,5			8			6	115,3	151		175
GRF/ZRF 30/152	1		152	2,8			8			6	134	170		200
GRF/ZRF 30/156	1	30	156	3,0	20	34	8	4,2	30	6	137,9	174	5,5X8	207
GRF/ZRF 30/165	1;3		165	3,0			8			6	146,7	183		220
GRF/ZRF 30/200	1		200	3,8			8			6	181	218		265
GRF/ZRF 30/215	1;3		215	4,2			8			6	195,7	233		285
GRF/ZRF 30/250	1;3		250	4,2			8			6	230	268		320
GRF/ZRF 30/265	1;3		265	4,6			8			6	244,7	283		350
GRF/ZRF 30/330	1;3		330	5			8			15	301	348	5.5X8	440
ZRF 45/370	1	45	370	5,5	30	50	10	5,2	39	12	341,6	-	-	950
ZRF 55/100	1		100	1,8			10			15	72	124		260
ZRF 55/150	1		140	2,5			10			15	111,2	164		355
ZRF 55/210	1		210	4,2			10			15	179,8	234		525
ZRF 55/290	1		290	4,6			10			15	258,2	314		725
ZRF 55/300	1	55	300	4,6	42	60	10	5,2	43,5	15	268	324	5,5X8	740
ZRF 55/390	1		390	5,5			10			15	356,2	414		940
ZRF 55/400	1		400	5,5			10			15	366	424		960
ZRF 55/490	1		490	6,8			10			15	454,2	514		1200
ZRF 55/500	1		500	6,8			10			15	464	524		1230
ZRF55/590	1		590	7,6			10			15	553	614		1450

L: Tinned, **S**: Screw / **A**: Fast-On







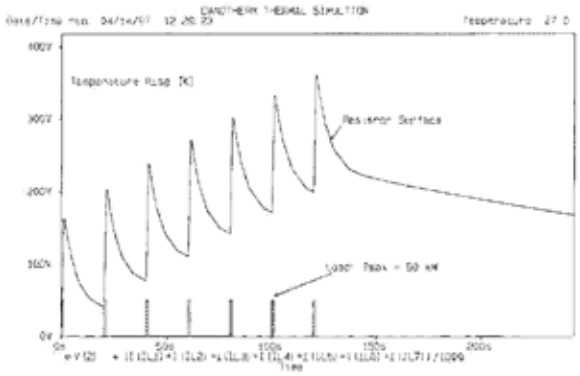
Profile 3 **Profile 1** **GRV/ ZRV** **GRF/ZRF** **GBV / ZBV** **GBF / ZBF**

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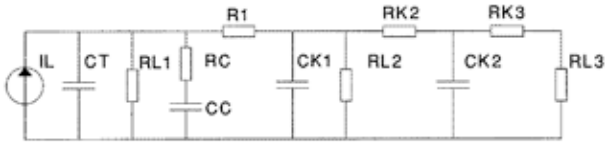
HOW MAY WE SUPPORT YOU?

Don't hesitate to contact us if you have any unresolved questions, or visit our website at www.danotherm.dk.





All Danotherm Resistors can be equiped with a thermal model, which makes it possible to calculate the TEMPERATURE RISE during a specified load. Particularly by pulse loads it is possible to simulate the temperature rise by using a programme as Pspice. You can either ask DANOTHERM to do a simulation or ask for the thermal model of your resistor to do the simulation yourself.

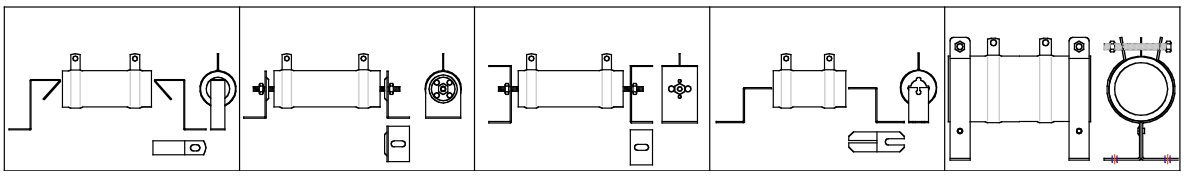


Please order as follows:

ZBF 30/330 S XXR ±10% 590

- Drawing No (000 is standard resistor)
- Resistance tolerance 5% or 10%
- **R**: Resistance (16R = 16 ; 5K6 = 5.6 k)
- **O**hmic value
- **S**: Screw / **L**: Tinned / **A**: Fast-On
- **Length** of resistor body
- **Diameter** of resistor body
- **F**: Fixed resistor / **I:** Low inductance / **V**: Adjustable
- **R**: Normal wire/ **B**: Corrugated flat wire
- **G:** Vitreous Enamelled / **Z**: Cement coated

The type name contains a complete description of a standard resistor. If special requirements are requested the last three digits will be greater than 100.
This can be a special mechanical construction or just a specified wiring configuration.



Mounting Brackets	Complete Sets			
Profil No 1	Profil No 1	30Ø Profil 3	30Ø Profil 3	55Ø
10mmØ/12mmØ: R101	20mmØ: R701/Length	R801/Length	30mmØ: R107	R901
15mmØ: R102	30mmØ: R702/Length			
20mmØ: R103	55mmØ: R703/Length			
24mmØ: R104				
30mmØ: R105				

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danotherm@danotherm.dk · www.danotherm.dk

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