Water Cooled Wirewound Resistor

FEATURES

- Direct cooling without heat sink
- Better power / volume ratio
- Non-inductive optional
- 1 WCR = 6 wirewound resistors = 5 thick-film resistors
- Up to 6 resistive functions on 1 WCR tube
- 1 single supply for several functions (snubber and divider)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

DESIGN SUPPORT TOOLS

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3D Models Available

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING (1) W	RESISTANCE RANGE Ω	TOLERANCE ± %
WCR 30 x 250	1500	4.7 to 56K	5
WCR 38 x 250	2000	4.7 to 56K	5
WCR 38 x 300	2500	4.7 to 56K	5

Note

(1) Water inlet temperature 60 °C with 40 % glycol, flow rate 5 l/min

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	100 ppm/°C (typical)
Maximum working voltage	V	Up to 3500 V (6600 V on specific request)
Operating temperature range	°C	-55 to +120

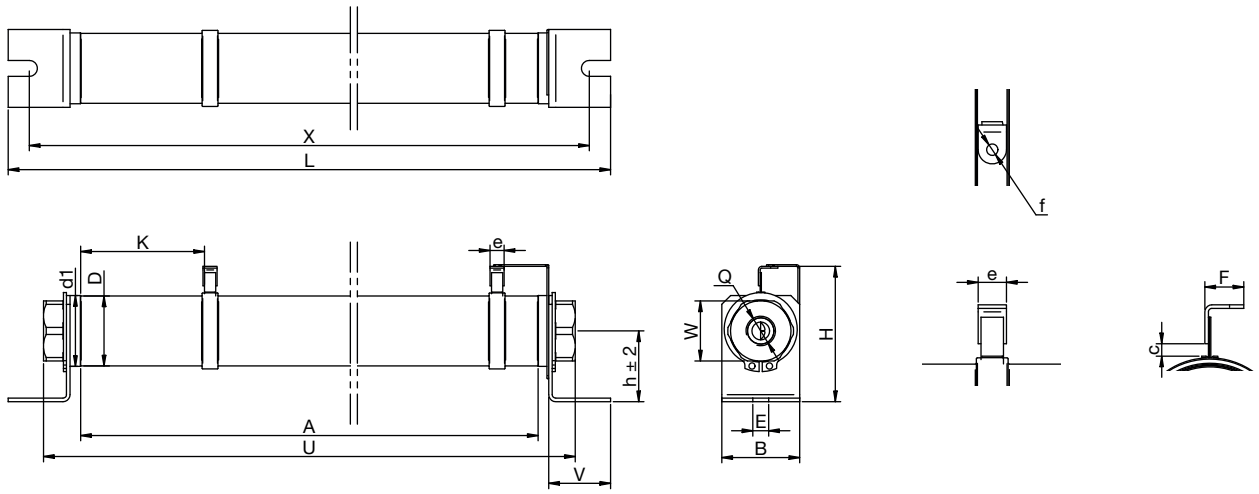
GENERAL CHARACTERISTICS

Core	Ceramic
Winding	NiCr alloy fully insulated from water
Hydraulic plugs	Stainless steel (corrosion free)
Coating	Vitreous enamel or silicone coating (1)
Ohmic values	E12 (4.7 Ω to 56 kΩ)
Inductance	Non-inductive type on request
Cooling	Industrial or deionized water; coolant mixtures up to 60 % glycol
Operating pressure	1 bar to 6 bars
Test pressure	10 bars
Flow	5 l/min to 15 l/min
CTI Index	> 600
Creeping distance	On request
Clearance distance	On request
Electrical connections	M3 screw and nut (other on request)
Mounting	Vertically (recommended)
Overload	2 x P_n 10 s ($\theta_{60\ °C}$ at 5 l/min)
Endurance	1000 cycles P_n 30 s/30 s; variation < 5 %
Pressure drop	0.8 bar for WCR 30 mm x 250 mm; 0.25 bar for WCR 38 mm x 250 mm and WCR 38 mm x 300 mm (flow rate 10 l/min)

Note

(1) For PD reason (withstand)

DIMENSIONS in millimeters



TYPE	30 x 250	38 x 250	38 x 300
Water pipe diameter	Ø 8	Ø 10	Ø 10
A	250	250	300
B + 0.5 / - 0	32	44	44
c	3.5	3.5	3.5
C	14.5	14.5	14.5
$D_{max.}$	35	43	43
d1	32	40	40
E	7	9	9
e	8	8	8
f	Ø 3.2	Ø 3.2	Ø 3.2
F	11	11	11
$H_{max.}$	54	80	80
h ± 2	25	40	40
K	(1)	(1)	(1)
$L_{max.}$	304	335	385
Ø	30	38	38
Q	G 3/8 (2)	G 3/8 (2)	G 3/8 (2)
U	288	292	342
V	20	35	35
W	24	34	34
X ± 2	286	308	358
Weight	1 kg	1.3 kg	1.5 kg

Notes

(1) Creeping / clearance on request

(2) Other hydraulic connections on request

SPECIFIC CHARACTERISTICS

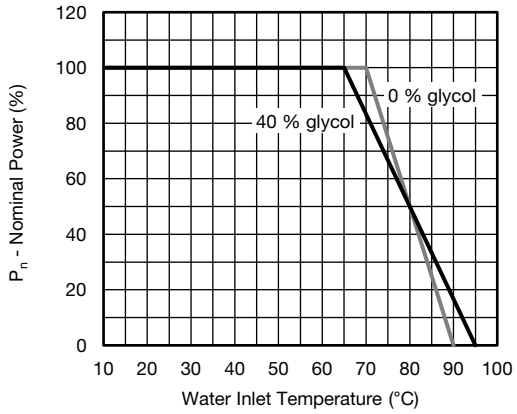


Fig. 1 - Nominal Power Dissipated According to Water Inlet Temperature
P_n = f (Water Inlet Temperature)
Flow Rate = 5 l/min

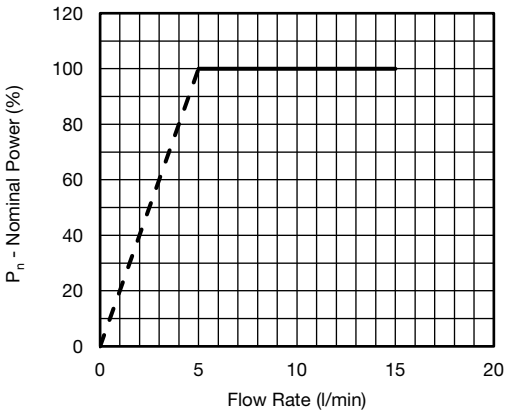


Fig. 2 - Power Dissipated According to the Flow Rate
P_n = f (Flow Rate)
Temperature = 60 °C

OPTIONS

On request

ORDERING INFORMATION

WCR	30 x 250	A	10K	± 5 %	XXX	BO12
MODEL	STYLE	NON-INDUCTIVE WINDING	RESISTANCE VALUE	TOLERANCE	CUSTOM DESIGN	PACKAGING
		Optional		± 5 % ± 10 % Other on request	Optional On request: special value, tolerance, terminals, etc.	

GLOBAL PART NUMBER INFORMATION

W	C	R	3	8	2	5	0	A	3	9	0	0	J	B			
1			2					3	4				5	6	7		

1	2	3	4	5	6	7
PRODUCT TYPE	SIZE	OPTION (if applicable)	RESISTANCE VALUE	TOLERANCE	PACKAGING	INDUSTRIALIZATION NUMBER
WCR	**30250 38250 38300**	**A = non-inductive winding**	**The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point. 4702 = 47 kΩ 47R0 = 47 Ω**	**J = 5 % K = 10 %**	**B = box Box quantity depends of model and size**	**3 specific digits (if applicable)**

EXAMPLES

MODEL	DESCRIPTION	PART NUMBER
WCR	WCR 38X250 15U A 5 % BO12	WCR38250A15R0JB

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