Vitreous Wirewound Resistors with Lugs

FEATURES

- Complete welded construction
- Ceramic core
- High quality vitreous coating
- Available in adjustable = “E” or non inductive design = “Ni”
- Lugs with various termination styles suitable for soldering or bolt connection
- TCR 100 ppm/K to 180 ppm/K
- Compliant to RoHS Directive 2002/95/EC

Pb-free

RoHS COMPLIANT

GREEN (5-2008)**

Note

** Please see document “Vishay Material Category Policy”: www.vishay.com/doc?99902

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40\,°C}$ W	LIMITING VOLTAGE	TERMINAL	SIZE DIN 41432	RESISTANCE RANGE (1) Ω	TOLERANCE ± %
GWS 15	15	250	SL	9 x 45	4.3 to 20K	10, 5
					30 to 15K	3
					220 to 20K	2
GWS 15 E	10				4.3 to 620	10, 5
GWS 15 Ni					5.1 to 910	10, 5
GWS 20	20	300	SL, SS	-	3.6 to 30K	10, 5
					180 to 30K	2
GWS 20 E	15				4.3 to 1K	10, 5
GWS 20 Ni					5.1 to 1.3K	10, 5
GWS 25	25	300	SL, SS	13 x 55	3.6 to 39K	10, 5
					30 to 20K	3
					91 to 39K	2
GWS 25 E	18				5.1 to 1.3K	10, 5
GWS 25 Ni					6.8 to 1.8K	10, 5
GWS 35	30	400	SL, SS	-	5.1 to 47K	10, 5
					56 to 47K	2
GWS 35 E	22				6.8 to 1.6K	10, 5
GWS 35 Ni					8.2 to 2.4K	10, 5
GWS 50	40	400	SL, SS, SB, FST	16 x 63	3.3 to 62K	10, 5
					33 to 24K	3
					100 to 62K	2
GWS 50 E	30			16 x 63	8.2 to 2K	10, 5
GWS 50 Ni					10 to 3K	10, 5
GWS 75	65	800	SL, SS, SB, FST	16 x 100	7.5 to 130K	10, 5
					15 to 39K	3
					30 to 130K	2
GWS 75 E	45				18 to 3.9K	10, 5
GWS 75 Ni					22 to 6.2K	10, 5
GWS 100	80	600	SS, SSB, SB, FST	24 x 100	6.8 to 110K	10, 5
					20 to 51K	3
					75 to 110K	2
GWS 100 E	60				13 to 5.1K	10, 5
GWS 100 Ni					24 to 6.8K	10, 5

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40\,°C}$ W	LIMITING VOLTAGE	TERMINAL	SIZE DIN 41432	RESISTANCE RANGE (1) Ω	TOLERANCE ± %
GWS 220	160	1250	SS, SSB, SB, FST	24 x 165	13 to 160K	10, 5
					30 to 100K	3
					56 to 160K	2
GWS 220 E	120				30 to 10K	10, 5
GWS 220 Ni					51 to 16K	10, 5
GWS 300	300	2500	SS, SSB, SB, FST	24 x 265	24 to 300K	10, 5
					51 to 150K	3
					110 to 300K	2
GWS 300 E	200				56 to 20K	10, 5
GWS 300 Ni					100 to 30K	10, 5
GWS 500	500	3000	SS, SSB, SB, FST	36 x 330	39 to 270K	10, 5
					100 to 240K	3
					75 to 270K	2
GWS 500 E	300				100 to 36K	10, 5
GWS 30/100	150	1600	SS, SSB, SB, FST	-	9.1 to 100K	10, 5
					27 to 100K	2
GWS 30/100 E	110				22 to 8.2K	10, 5
GWS 30/133	200	2300	SS, SSB, SB, FST	-	13 to 160K	10, 5
					27 to 160K	2
GWS 30/133 E	130				36 to 13K	10, 5

Notes

(1) Resistance value to be selected for ± 10 % tolerance from E12 and for ± 5 % from E24

- For available “Mounting Accessories for Resistors”, please see: www.vishay.com/doc?21015

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: GWS01531009KLX000

G	W	S	0	1	5	3	1	0	0	9	K	L	X	0	0	0

MODEL

GWS015 = GWS 15
GWS020 = GWS 20
GWS025 = GWS 25
GWS035 = GWS 35
GWS050 = GWS 50
GWS075 = GWS 75
GWS100 = GWS 100
GWS220 = GWS 220
GWS300 = GWS 300
GWS500 = GWS 500
GWSN84 = GWS 30/100
GWSN91 = GWS 30/133

VARIANT/TERMINAL

3 = SL
4 = SS
5 = SB
6 = SSB
7 = FST
8 = E SL
9 = E SS
A = E SB
B = E SSB
C = E FST
D = Ni SL
E = Ni SS
F = Ni SB
G = Ni SSB
H = Ni FST
I = SWI SL
J = SWI SS
K = SWI SB
L = SWI SSB
M = SWI FST
Z = Value overflow (BV)

VALUE

3 digit value
1 digit multiplier
MULTIPLIER
8 = $*10^{-2}$
9 = $*10^{-1}$
0 = $*10^{0}$
1 = $*10^{1}$
2 = $*10^{2}$
3 = $*10^{3}$

TOLERANCE CODE

G = ± 2.0 %
H = ± 3.0 %
J = ± 5.0 %
K = ± 10.0 %

PACKAGING CODE

LX = Loose pack, without quantity
ZX = Special pack (with BV #), without quantity

SPECIAL

The 5 digit BV number will be encoded using a 36 character code. This code contains numbers 0...9 and letters A...Z (36 characters total) and allows to encode at least 46 655 five digit BV numbers.
000 = Standard

Product Description: GWS 15 SL 10R 10 % LX

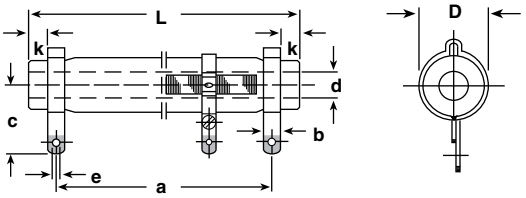
GWS 15	SL	10R	10 %	LX
MODEL (2)	VARIANT/TERMINAL (2)	VALUE (2)	TOLERANCE CODE (2)	PACKAGING DESCRIPTION (3)

Notes

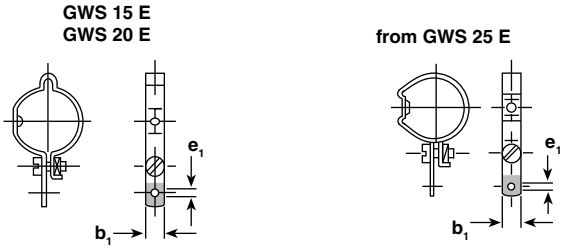
(2) See “Part Number” above
(3) See “Packaging Code” above

DIMENSIONS

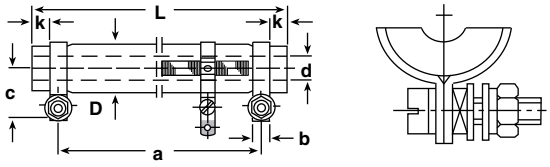
SL TERMINALS



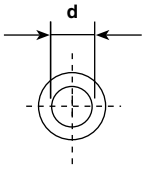
ADJUSTABLE LUGS



SS TERMINALS



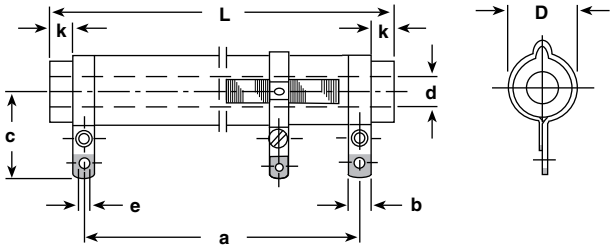
CORE SECTION



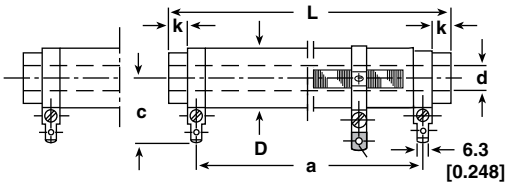
MODEL	DIMENSIONS in millimeters [inches]						
	GWS 15 GWS 15 E GWS 15 Ni	GWS 20 GWS 20 E GWS 20 Ni		GWS 25 GWS 25 E GWS 25 Ni		GWS 35 GWS 35 E GWS 35 Ni	
TERMINAL	**SL**	**SL**	**SS**	**SL**	**SS**	**SL**	**SS**
DIMENSION							
D	7.5 ± 0.5 [0.295 ± 0.020]	9.5 ± 0.5 [0.374 ± 0.020]		11.8 ± 0.8 [0.465 ± 0.031]		11.8 ± 0.8 [0.465 ± 0.031]	
L	45 ± 1.5 [1.772 ± 0.059]	50 ± 1.5 [1.969 ± 0.059]		55 ± 1.5 [2.165 ± 0.059]		62 ± 2 [2.441 ± 0.079]	
a ± 2 [a ± 0.079]	36 [1.417]	39 [1.535]	40 [1.575]	43 [1.693]	44 [1.732]	50 [1.969]	51 [2.008]
b	4 [0.157]	4 [0.157]	5 [0.197]	4 [0.157]	5 [0.197]	4 [0.157]	5 [0.197]
b_1	4 [0.157]	4 [0.157]	4 [0.157]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]
c	15.5 [0.610]	18 [0.709]	10.5 [0.413]	19 [0.748]	11.5 [0.453]	19 [0.748]	11.5 [0.453]
d	2.6 [0.102]	3.5 [0.138]	3.5 [0.138]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]
e	1.5 [0.059]	2 [0.079]	M3 x 16	2 [0.079]	M3 x 16	2 [0.079]	M3 x 16
e_1	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]
k	2.5 [0.098]	3.5 [0.138]	2.5 [0.098]	4 [0.157]	3 [0.118]	4 [0.157]	3 [0.118]
Mass (g)	6	8		13		15	

DIMENSIONS (continued)

SL TERMINALS



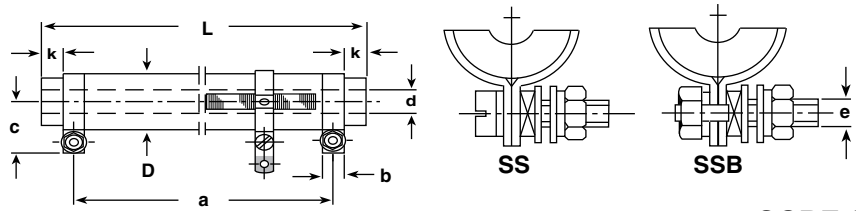
FST TERMINALS



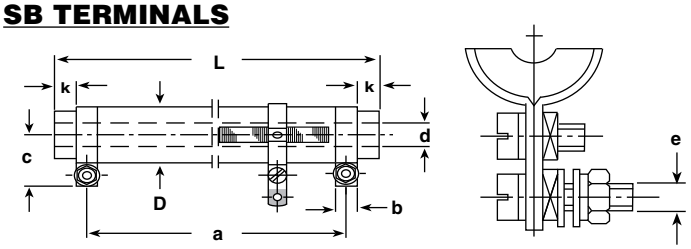
GWS 50
GWS 75

from GWS 100
FST A 6.3 mm [0.248]/DIN 46244
(at end terminals only)

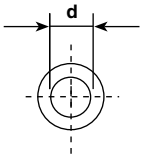
SS AND SSB TERMINALS



SB TERMINALS



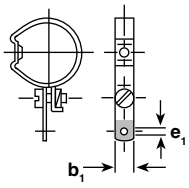
CORE SECTION



GWS 15 ... GWS 500

ADJUSTABLE LUGS

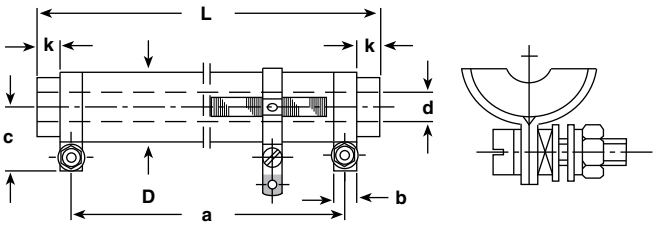
from GWS 25 E



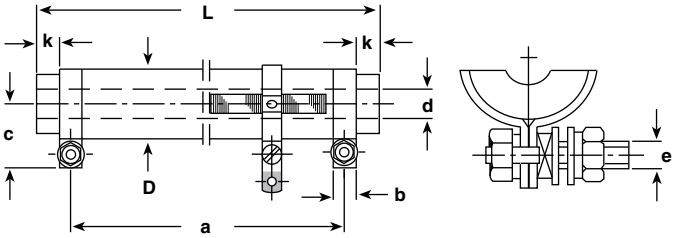
MODEL	DIMENSIONS in millimeters [inches]															
	GWS 50 GWS 50 E GWS 50 Ni				GWS 75 GWS 75 E GWS 75 Ni				GWS 100 GWS 100 E GWS 100 Ni				GWS 220 GWS 220 E GWS 220 Ni			
TERMINAL	SL	SS	SB	FST	SL	SS	SB	FST	SL	SSB	SB	FST	SS	SSB	SB	FST
DIMENSION																
D	14.8 ± 0.8 [0.583 ± 0.031]				14.8 ± 0.8 [0.583 ± 0.031]				22.3 ± 1.3 [0.878 ± 0.051]				22.3 ± 1.3 [0.878 ± 0.051]			
L	62 ± 2 [2.441 ± 0.079]				100 ± 2 [3.937 ± 0.079]				100 ± 2 [3.937 ± 0.079]				165 ± 2 [6.496 ± 0.079]			
a ± 2 [a ± 0.079]	50 [1.969]	51 [2.008]	51 [2.008]	48 [1.890]	86 [3.386]	87 [3.425]	87 [3.425]	84 [3.307]	72 [2.835]				136 [5.354]			
b	4 [0.157]	5 [0.197]	5 [0.197]	6.3 [0.248]	4 [0.157]	5 [0.197]	5 [0.197]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]
b_1	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]
c	20.5 [0.807]	13 [0.512]	23 [0.906]	23.5 [0.925]	20.5 [0.807]	13 [0.512]	23 [0.906]	23.5 [0.925]	18.5 [0.728]	18.5 [0.728]	29.5 [1.161]	27 [1.063]	18.5 [0.728]	18.5 [0.728]	29.5 [1.161]	27 [1.063]
d	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]
e	2 [0.079]	M3 x 16		-	2 [0.079]	M3 x 16		-	M4 x 20			-	M4 x 20			-
e_1	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]
k	4 [0.157]	3 [0.118]	3 [0.118]	3 [0.118]	5 [0.197]	4 [0.157]	4 [0.157]	4 [0.157]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10.5 [0.413]	10.5 [0.413]	10.5 [0.413]	10.5 [0.413]
Mass (g)	25				40				92				135			

DIMENSIONS (continued)

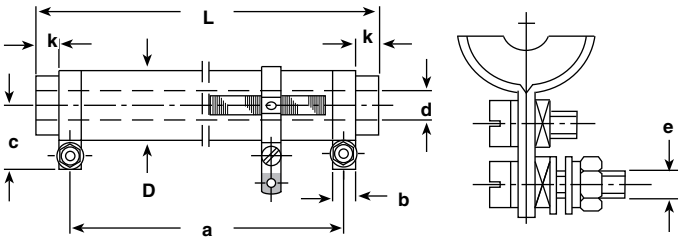
SS TERMINALS



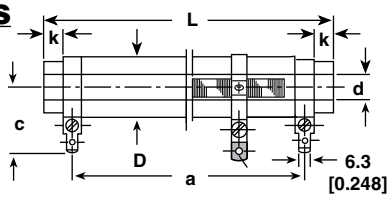
SSB TERMINALS



SB TERMINALS

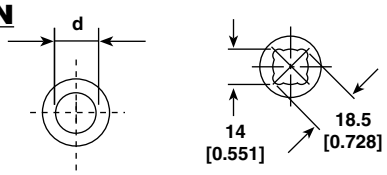


FST TERMINALS



FST A 6.3 mm [0.248]/DIN 46244
(at end terminals only)

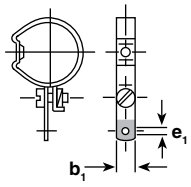
CORE SECTION



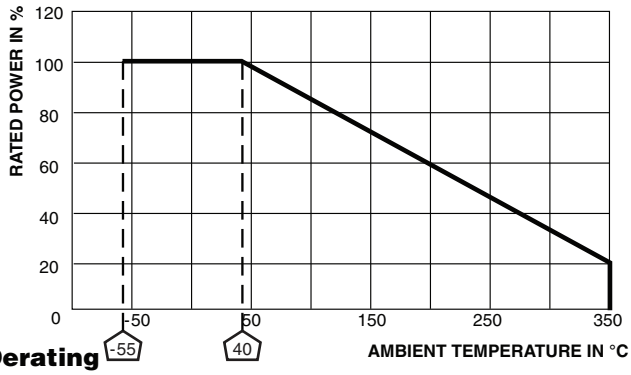
GWS 15 ... GWS 500 GWS 30/ ...

ADJUSTABLE LUGS

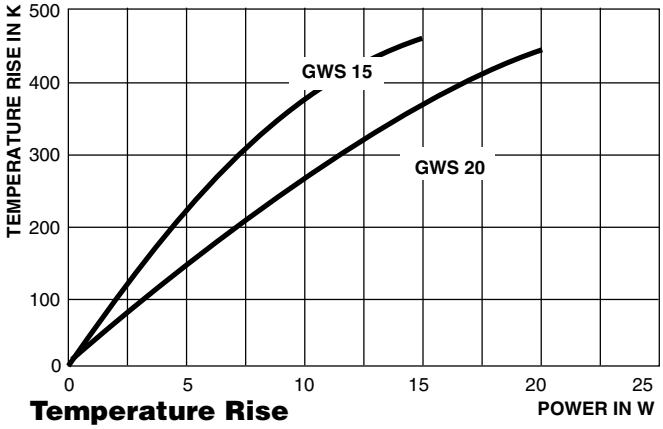
from GWS 25 E



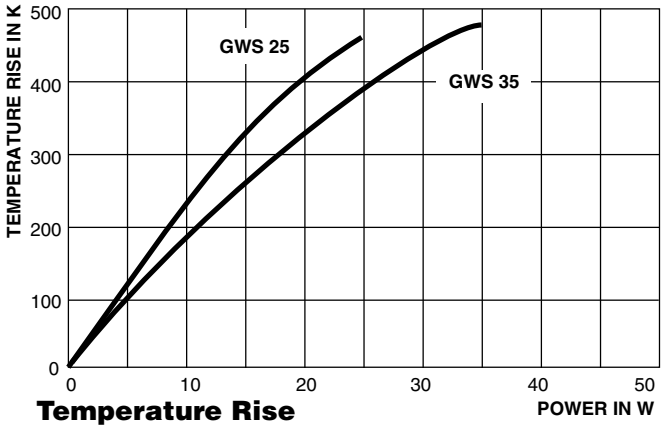
MODEL	DIMENSIONS in millimeters [inches]															
	GWS 300 GWS 300 E GWS 300 Ni				GWS 500 GWS 500 E				GWS 30/100 GWS 30/100 E				GWS 30/133 GWS 30/133 E			
TERMINAL	SS	SSB	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST
DIMENSION																
D	22.3 ± 1.3 [0.878 ± 0.051]				32.5 ± 1.5 [1.280 ± 0.059]				32.5 ± 1.5 [1.280 ± 0.059]				32.5 ± 1.5 [1.280 ± 0.059]			
L	265 ± 4 [10.433 ± 0.157]				330 ± 5 [12.992 ± 0.197]				100 ± 2.5 [3.937 ± 0.098]				133 ± 3 [5.236 ± 0.118]			
a ± 2 [a ± 0.079]	235 [9.252]				280 [11.024]				85 [3.346]				118 [4.646]			
b	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]
b1	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]
c	18.5 [0.728]	18.5 [0.728]	29.5 [1.161]	27 [1.063]	23.5 [0.925]	23.5 [0.925]	35 [1.378]	31.5 [1.240]	23.5 [0.925]	23.5 [0.925]	35 [1.430]	31.5 [1.240]	23.5 [0.925]	23.5 [0.925]	35 [1.378]	31.5 [1.240]
d	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	18.5 [0.728]	18.5 [0.728]	18.5 [0.728]	18.5 [0.728]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]
e	M4 x 20				M4 x 20				M4 x 20				M4 x 20			
e1	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]
k	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	21 [0.827]	21 [0.827]	21 [0.827]	21 [0.827]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]
Mass (g)	238				425				183				265			



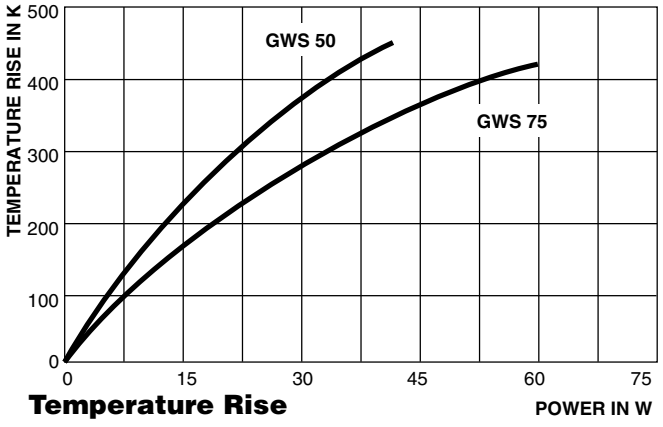
Derating



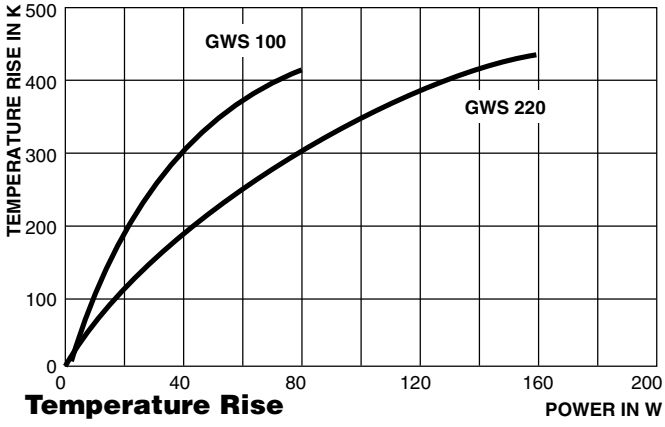
Temperature Rise



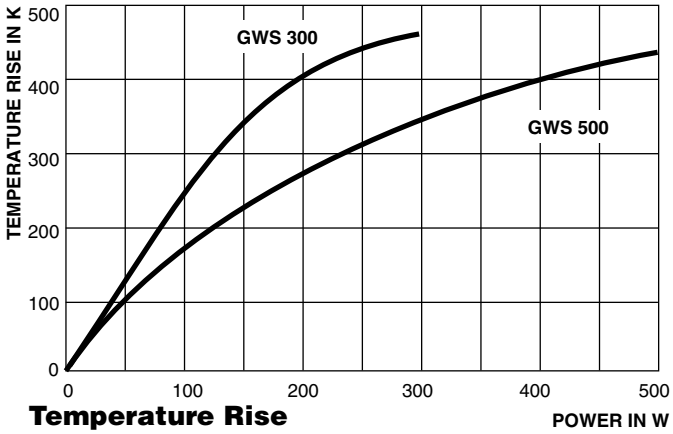
Temperature Rise



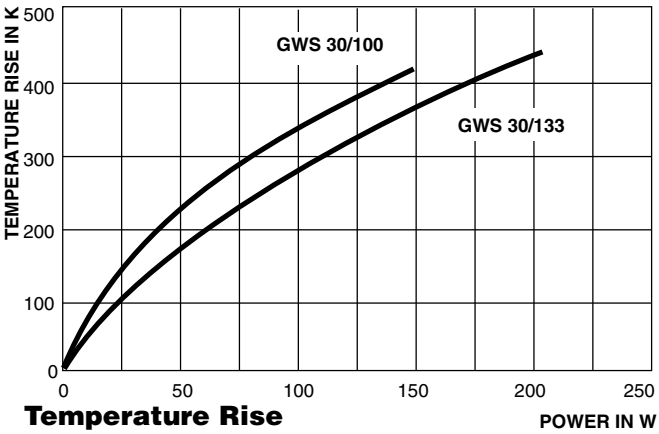
Temperature Rise



Temperature Rise



Temperature Rise



Temperature Rise

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