

Vitreous Wirewound Resistors with Lugs



FEATURES

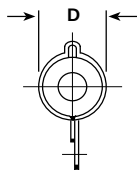
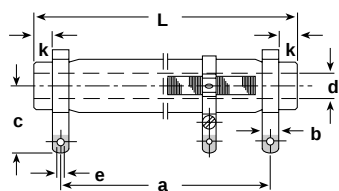
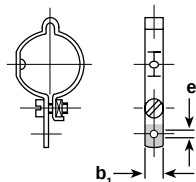
- Complete welded construction
- Ceramic core
- High quality vitreous coating
- Available in adjustable or non-inductive design
- Lugs with various termination styles suitable for soldering or bolt connection
- TC 100. . .180ppm/K

STANDARD ELECTRICAL SPECIFICATIONS							
MODEL	TERMINAL	SIZE DIN 41432	POWER RATING $P_{40^{\circ}\text{C}}$ W	LIMITING VOLTAGE V	RESISTANCE RANGE Ω	TOLERANCE $\pm \%$	E-SERIES
GWS 15	SL	9 x 45	15	250	4R3 - 20K 4R3 - 20K 30R - 15K 220R - 20K	10 5 3 2	E 12 E 24 DIN 41432
GWS 15 E		9 x 45	10	250	4R3 - 620R 4R3 - 620R	10 5	E 12 E 24
GWS 15 Ni		9 x 45	10	250	5R1 - 910R 5R1 - 910R	10 5	E 12 E 24
GWS 20	SL SS	—	20	300	3R6 - 30K 3R6 - 30K — 180R - 30K	10 5 3 2	E 12 E 24
GWS 20 E		—	15	300	4R3 - 1K0 4R3 - 1K0	10 5	E 12 E 24
GWS 20 Ni		—	15	300	5R1 - 1K3 5R1 - 1K3	10 5	E 12 E 24
GWS 25	SL SS	13 x 55	25	300	3R6 - 39K 3R6 - 39K 30R - 20K 91R - 39K	10 5 3 2	E 12 E 24 DIN 41432
GWS 25 E		13 x 55	18	300	5R1 - 1K3 5R1 - 1K3	10 5	E 12 E 24
GWS 25 Ni		13 x 55	18	300	6R8 - 1K8 6R8 - 1K8	10 5	E 12 E 24
GWS 35	SL SS	—	30	400	5R1 - 47K 5R1 - 47K — 56R - 47K	10 5 3 2	E 12 E 24
GWS 35 E		—	22	400	6R8 - 1K6 6R8 - 1K6	10 5	E 12 E 24
GWS 35 Ni		—	22	400	8R2 - 2K4 8R2 - 2K4	10 5	E 12 E 24
GWS 50	SL SS SB FST	16 x 63	40	400	3R3 - 62K 3R3 - 62K 33R - 24K 100R - 62K	10 5 3 2	E 12 E 24 DIN 41432
GWS 50 E		16 x 63	30	400	8R2 - 2K 8R2 - 2K	10 5	E 12 E 24
GWS 50 Ni		16 x 63	30	400	10R - 3K 10R - 3K	10 5	E 12 E 24

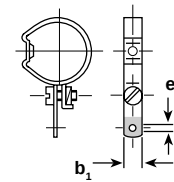
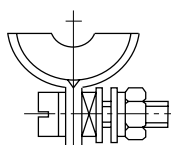
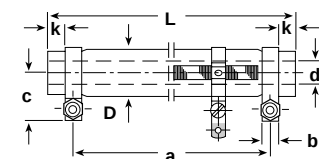
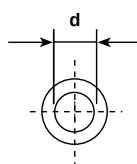


STANDARD ELECTRICAL SPECIFICATIONS (CONTINUED)							
MODEL	TERMINAL	SIZE DIN 41432	POWER RATING $P_{40^{\circ}\text{C}}$ W	LIMITING VOLTAGE V	RESISTANCE RANGE Ω	TOLERANCE $\pm \%$	E-SERIES
GWS 75	SL SS SB FST	16 x 100	65	800	7R5 - 130K 7R5 - 130K 15R - 39K 30R - 130K	10 5 3 2	E 12 E 24 D1N 41432
GWS 75 E		16 x 100	45	800	18R - 3K9 18R - 3K9	10 5	E 12 E 24
GWS 75 Ni		16 x 100	45	800	22R - 6K2 22R - 6K2	10 5	E 12 E 24
GWS 100	SS SSB SB FST	24 x 100	80	600	6R8 - 110K 6R8 - 110K 20R - 51K 75R - 110K	10 5 3 2	E 12 E 24 DIN 41432
GWS 100 E		24 x 100	60	600	13R - 5K1 13R - 5K1	10 5	E 12 E 24
GWS 100 Ni		24 x 100	60	600	24R - 6K8 24R - 6K8	10 5	E 12 E 24
GWS 220	SS SSB SB FST	24 x 165	160	1250	13R - 160K 13R - 160K 30R - 100K 56R - 160K	10 5 3 2	E 12 E 24 DIN 41432
GWS 220 E		24 x 165	120	1250	30R - 10K 30R - 10K	10 5	E 12 E 24
GWS 220 Ni		24 x 165	120	1250	51R - 16K 51R - 16K	10 5	E 12 E 24
GWS 300	SS SSB SB FST	24 x 265	300	2500	24R - 300K 24R - 300K 51R - 150K 110R - 300K	10 5 3 2	E 12 E 24 DIN 41432
GWS 300 E		24 x 265	200	2500	56R - 20K 56R - 20K	10 5	E 12 E 24
GWS 300 Ni		24 x 265	200	2500	100R - 30K 100R - 30K	10 5	E 12 E 24
GWS 500	SS SSB SB FST	36 x 330	500	3000	39R - 270K 39R - 270K 100R - 240K 75R - 270K	10 5 3 2	E 12 E 24
GWS 500 E		36 x 330	300	3000	100R - 36K 100R - 36K	10 5	E 12 E 24
GWS 30/100	SS SSB SB FST		150	1600	9R1 - 100K 9R1 - 100K — 27R - 100K	10 5 3 2	E 12 E 24 DIN 41432
GWS 30/100 E			110	1600	22R - 8K2K 22R - 8K2K	10 5	E 12 E 24
GWS 30/133	SS SSB SB FST		200	2300	13R - 160K 13R - 160K — 27R - 160K	10 5 3 2	E 12 E 24 D1N 41432
GWS 30/133 E			130	2300	36R - 13K 36R - 13K	10 5	E 12 E 24

ORDERING INFORMATION				
GWS	100	SS	100R	$\pm 5\%$
MODEL	SIZE	TERMINAL	RESISTANCE VALUE	TOLERANCE
			Ω	$\pm \%$

DIMENSIONS**SL TERMINALS****ADJUSTABLE LUGS**GWS 15 E
GWS 20 E

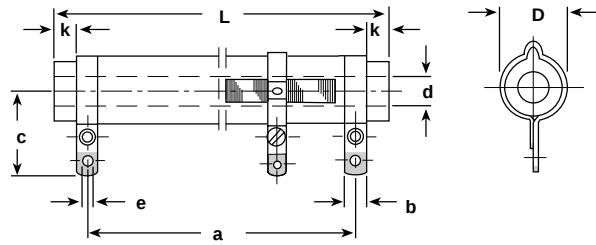
from GWS 25 E

**SS TERMINALS****CORE SECTION**

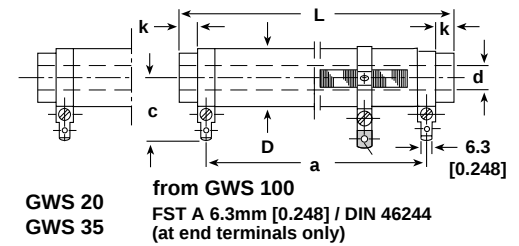
MODEL	DIMENSIONS in millimeters [inches]						
	GWS 15 GWS 15 E GWS 15 Ni	GWS 20 GWS 20 E GWS 20 Ni		GWS 25 GWS 25 E GWS 25 Ni		GWS 35 GWS 35 E GWS 35 Ni	
TERMINAL	SL	SL	SS	SL	SS	SL	SS
DIMENSION							
D	7.5 ± 0.5 [0.295 ± 0.020]	9.5 ± 0.5 [0.374 ± 0.020]		11.8 ± 0.8 [0.465 ± 0.031]		11.8 ± 0.8 [0.465 ± 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]
WEIGHT (Grams)	6	8		13		15	

DIMENSIONS (CONTINUED)

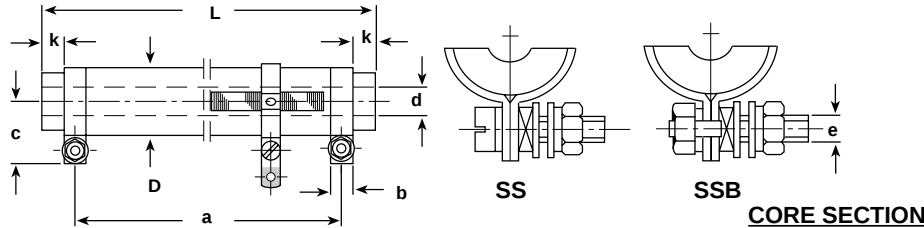
SL TERMINALS



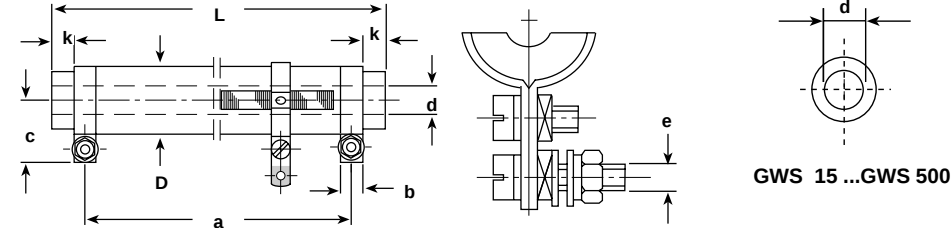
FST TERMINALS



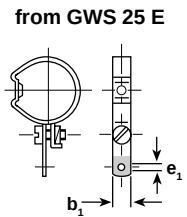
SS AND SSB TERMINALS



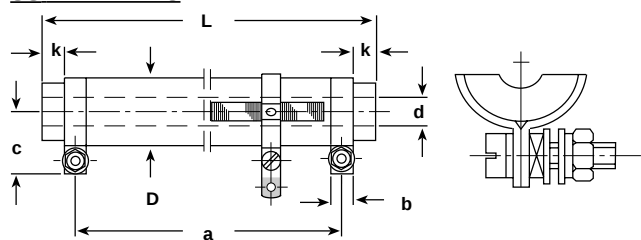
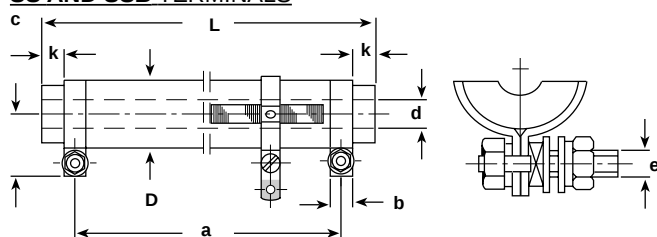
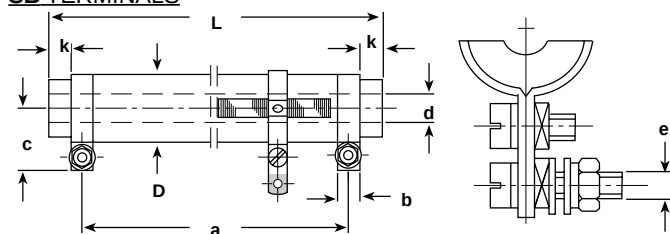
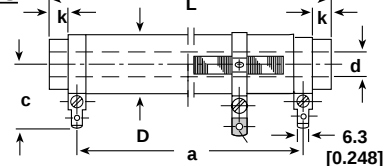
SB TERMINALS



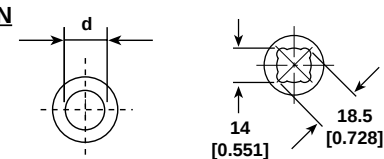
ADJUSTABLE LUGS



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	SS	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				22.3 ± 1.3			
L	62 ± 2 [2.441 ± 0.079]				100 ± 2 [4.100 ± 0.080]				100 ± 2 [4.100 ± 0.080]				100 ± 2 [4.100 ± 0.080]			
a ± 2 [a ± 0.079]	50 [1.969]	51 [2.008]	51 [2.008]	48 [1.890]	86 [3.520]	87 [3.570]	87 [3.570]	84 [3.440]	72 [2.950]				136 [5.570]			
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 [0.330]	8 [0.330]	8 [0.330]	6.3 [0.248]	8 [0.330]	8 [0.330]	8 [0.330]	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 [0.760]	18.5 [0.760]	29.5 [1.210]	27 [1.110]	18.5 [0.760]	18.5 [0.760]	29.5 [1.210]	27 [1.110]
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 [0.410]	10 [0.410]	10 [0.410]	10 [0.410]	10 [0.410]	10 [0.410]	10 [0.410]	10 [0.410]
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 [0.410]	10 [0.410]	10 [0.410]	10 [0.410]	10.5 [0.430]	10.5 [0.430]	10.5 [0.430]	10.5 [0.430]
WEIGHT (Grams)	25				40				92				135			

DIMENSIONS (CONTINUED)**SS TERMINALS****SS AND SSB TERMINALS****SB TERMINALS****FST TERMINALS**

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

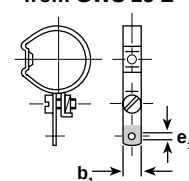
CORE SECTION

GWS 15 ...GWS 500

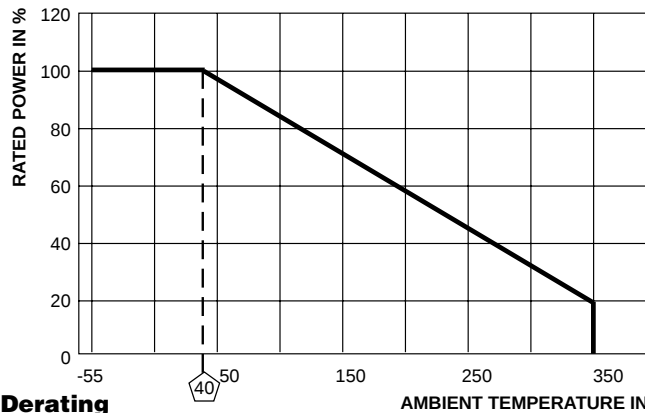
GWS 30/ ...

ADJUSTABLE LUGS

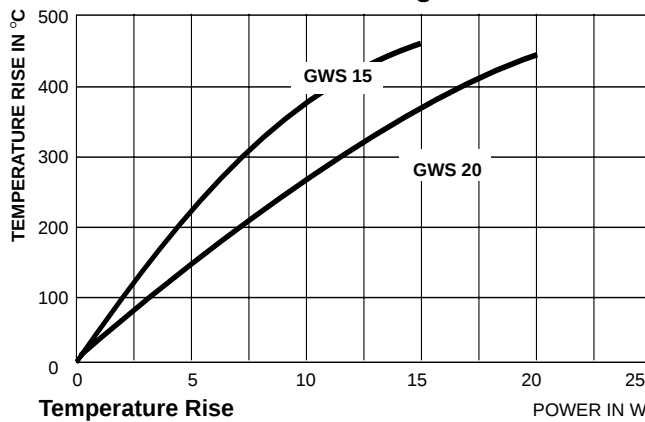
from GWS 25 E



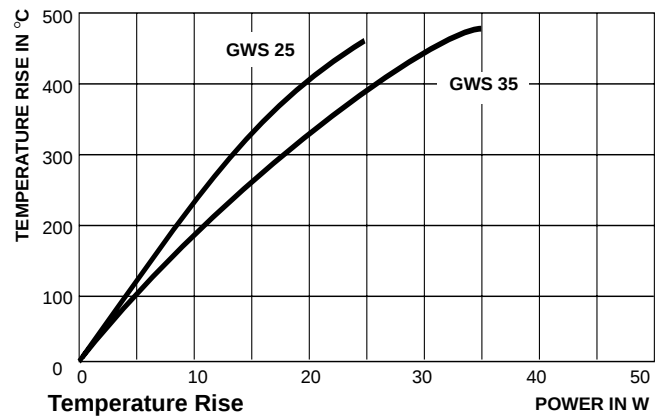
MODEL	DIMENSIONS in millimeters [inches]															
	GWS 300 GWS 300 E GWS 300 Ni				GWS 500 GWS 500 E				GWS 30/100 GWS 30/100 E				GWS 30/133 GWS 30/133 E			
TERMINAL	SS	SSB	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST
DIMENSION																
D	22.3 ± 1.3 [0.878 ± 0.051]				32.5 ± 1.5 [1.330 ± 0.060]				32.5 ± 1.5 [1.330 ± 0.060]				32.5 ± 1.5 [1.330 ± 0.060]			
L	265 ± 4 [2.433 ± 0.157]				330 ± 5 [13.52 ± 0.200]				100 ± 2.5 [4.100 ± 0.100]				133 ± 3 [5.450 ± 0.120]			
a ± 2 [a ± 0.079]	235 [9.252]				280 [11.48]				85 [3.480]				118 [4.840]			
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]
b ₁	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 [0.960]	23.5 [0.960]	35 [1.430]	31.5 [1.290]	23.5 [0.960]	23.5 [0.960]	35 [1.430]	31.5 [1.290]	23.5 [0.960]	23.5 [0.960]	35 [1.430]	31.5 [1.290]
d	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	18.5 [0.760]	18.5 [0.760]	18.5 [0.760]	18.5 [0.760]	14 [0.570]	14 [0.570]	14 [0.570]	14 [0.570]	14 [0.570]	14 [0.570]	14 [0.570]	14 [0.570]
e	M4 x 20				M4 x 20				M4 x 20				M4 x 20			
e ₁	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]	4.2 [0.170]
k	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	21 [0.860]	21 [0.860]	21 [0.860]	21 [0.860]	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]
WEIGHT (Grams)	238				425				183				265			



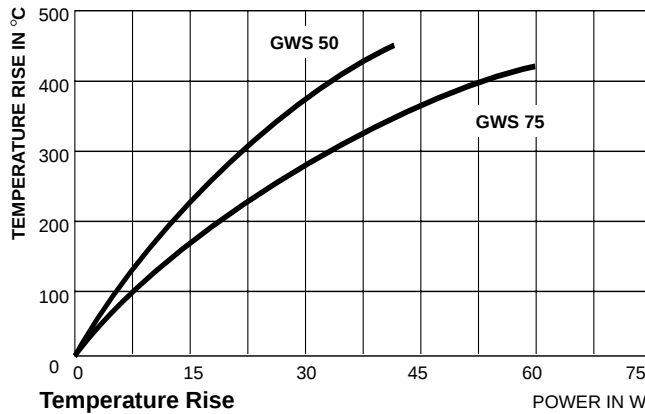
Derating



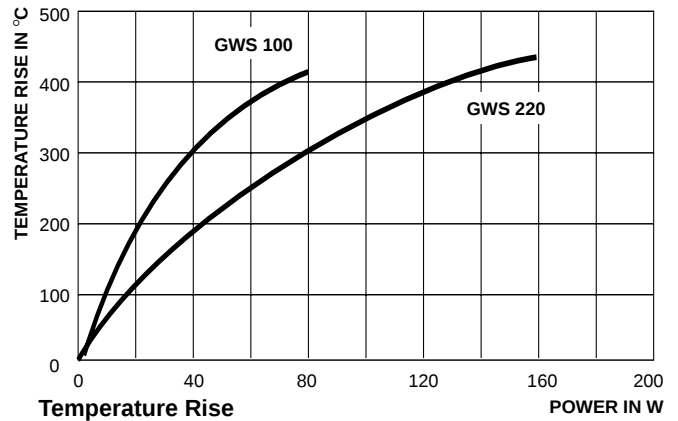
Temperature Rise



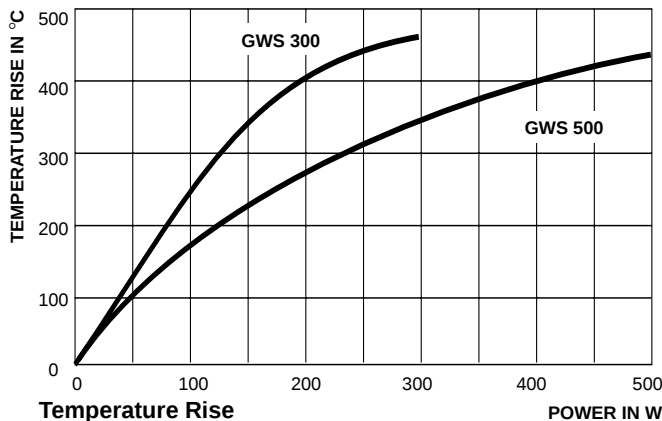
Temperature Rise



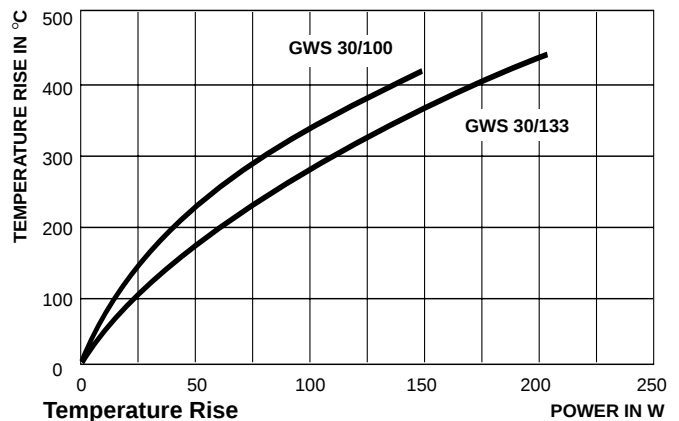
Temperature Rise



Temperature Rise



Temperature Rise



Temperature Rise