

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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

STANDARD ELECTRICAL SPECIFICATIONS						
MODEL	POWER RATING <i>P</i> _{40 °C} W	LIMITING VOLTAGE	TERMINAL	DIMENSIONS DIN 41432	RESISTANCE RANGE ⁽¹⁾ Ω	TOLERANCE ± %
GWS 15	15	250	SL	8 x 45	4.3 to 20K	5, 10
					30 to 15K	3
					220 to 20K	2
GWS 15 E	10				4.3 to 620	5, 10
GWS 15 Ni					5.1 to 910	
GWS 20	20	300	SL, SS	10 x 50	3.6 to 30K	5, 10
GWS 20 E	15				180 to 30K	2
GWS 20 Ni					4.3 to 1K	5, 10
					5.1 to 1.3K	
GWS 25	25			13 x 55	3.6 to 39K	5, 10
					30 to 20K	3
					91 to 39K	2
GWS 25 E	18				5.1 to 1.3K	5, 10
GWS 25 Ni			6.8 to 1.8K			
GWS 35	30		400	SL, SS, SB, FST	13 x 62	5.1 to 47K
GWS 35 E	22	56 to 47K				2
GWS 35 Ni		6.8 to 1.6K				5, 10
GWS 50	40	SL, SS, SB, FST		16 x 63	3.3 to 62K	5, 10
			33 to 24K		3	
			100 to 62K		2	
GWS 50 E	30		8.2 to 2K		5, 10	
GWS 50 Ni			10 to 3K			
GWS 75	65		800	16 x 100	7.5 to 130K	5, 10
					15 to 39K	3
					30 to 130K	2
GWS 75 E	45	18 to 3.9K			5, 10	
GWS 75 Ni		22 to 6.2K				
GWS 100	80	600	SS, SSB, SB, FST	24 x 100	6.8 to 110K	5, 10
					20 to 51K	3
					75 to 110K	2
GWS 100 E	60				13 to 5.1K	5, 10
GWS 100 Ni			24 to 6.8K			



STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40^{\circ}\text{C}}$ W	LIMITING VOLTAGE	TERMINAL	DIMENSIONS DIN 41432	RESISTANCE RANGE ⁽¹⁾ Ω	TOLERANCE $\pm \%$		
GWS 220	160	1250	SS, SSB, SB, FST	24 x 165	13 to 160K	5, 10		
					30 to 100K	3		
GWS 220 E	120				56 to 160K	2		
GWS 220 Ni		30 to 10K		5, 10				
		51 to 16K						
GWS 300	300	2500		24 x 265	24 to 300K	5, 10		
					51 to 150K	3		
GWS 300 E	200				110 to 300K	2		
GWS 300 Ni					56 to 20K	5, 10		
					100 to 30K			
GWS 500	500				3000	34 x 330	39 to 270K	5, 10
							100 to 240K	3
GWS 500 E	300	75 to 270K		2				
		100 to 36K		5, 10				
GWS 30/100	150	1600		34 x 100	9.1 to 100K	5, 10		
					27 to 100K	2		
GWS 30/100 E	110				22 to 8.2K	5, 10		
GWS 30/133	200	2300		34 x 133	13 to 160K	5, 10		
					27 to 160K	2		
GWS 30/133 E	130				36 to 13K	5, 10		

Notes

- (1) Resistance value to be selected for $\pm 10 \%$ tolerance from E12 and for $\pm 5 \%$, $\pm 3 \%$, and $\pm 2 \%$ 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
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MODEL	VARIANT/ TERMINAL	VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
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	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)	3 digit value 1 digit multiplier MULTIPLIER 8 = $\cdot 10^{-2}$ 9 = $\cdot 10^{-1}$ 0 = $\cdot 10^0$ 1 = $\cdot 10^1$ 2 = $\cdot 10^2$ 3 = $\cdot 10^3$	G = $\pm 2.0 \%$ H = $\pm 3.0 \%$ J = $\pm 5.0 \%$ K = $\pm 10.0 \%$	LX = Loose pack, without quantity ZX = Special pack (with BV #), without quantity	000 = Standard 3 digit code = Special version ⁽²⁾

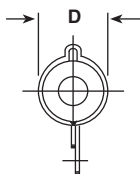
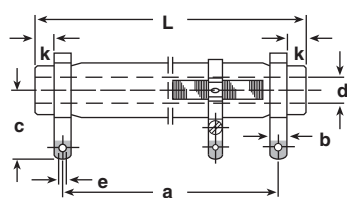
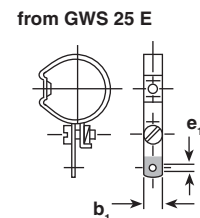
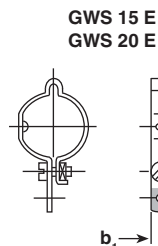
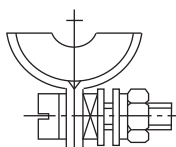
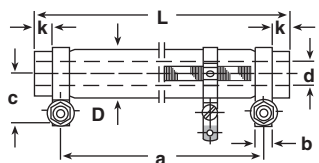
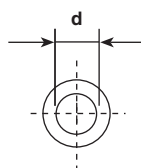
Product Description: GWS 15 SL 10R 10 % LX

GWS 15	SL	10R	10 %	LX
MODEL ⁽³⁾	VARIANT/TERMINAL ⁽³⁾	VALUE ⁽³⁾	TOLERANCE CODE ⁽³⁾	PACKAGING DESCRIPTION ⁽⁴⁾

Notes

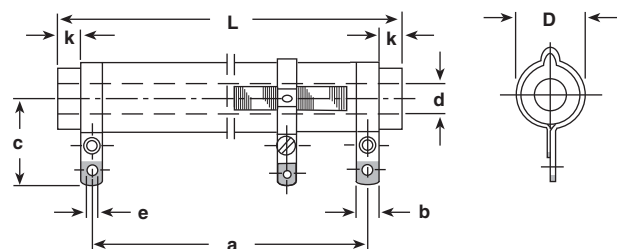
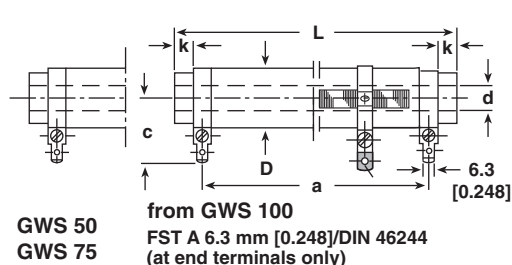
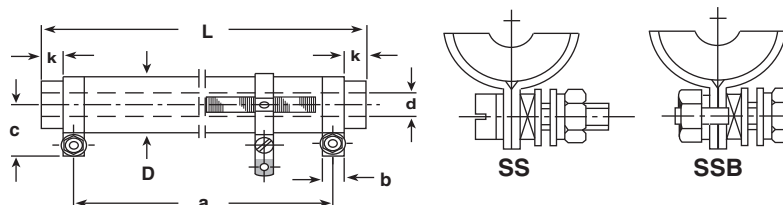
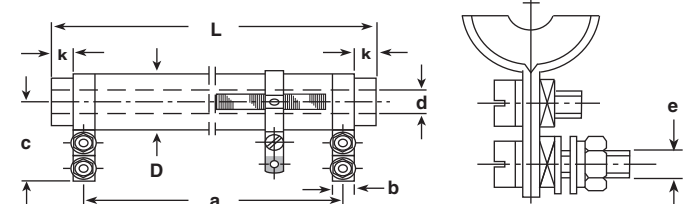
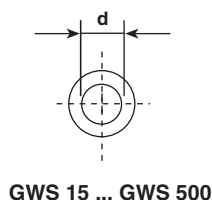
- (2) For special variants, special winding, or NI version, please contact: ww1resistors@vishay.com
- (3) See "Part Number" above
- (4) See "Packaging Code" above

DIMENSIONS in millimeters [inches]

SL TERMINALS

ADJUSTABLE LUGS

SS TERMINALS

CORE SECTION


MODEL	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
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]
b₁	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
e₁	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	

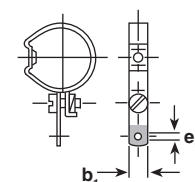
DIMENSIONS in millimeters [inches]

SL TERMINALS

FST TERMINALS

SS AND SSB TERMINALS

SB TERMINALS

CORE SECTION


GWS 15 ... GWS 500

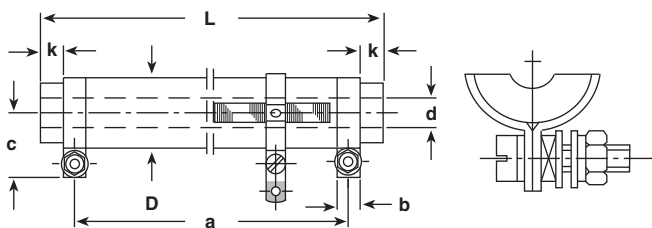
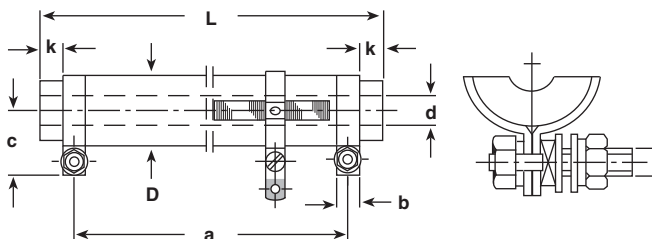
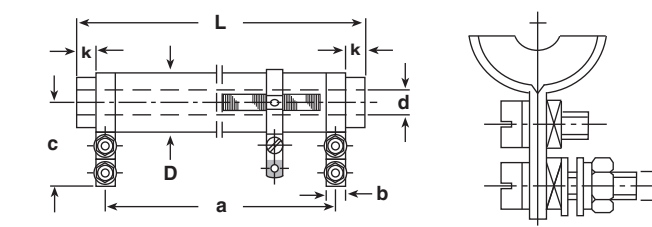
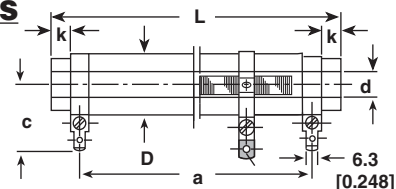
ADJUSTABLE LUGS

from GWS 25 E

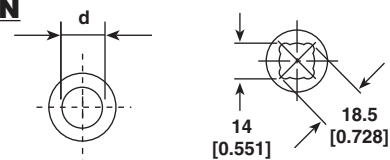


MODEL	GWS 50 GWS 50 E GWS 50 Ni				GWS 75 GWS 75 E GWS 75 Ni				GWS 100 GWS 100 E GWS 100 Ni				GWS 220 GWS 220 E GWS 220 Ni			
TERMINAL	SL	SS	SB	FST	SL	SS	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST
D	14.8 ± 0.8 [0.583 ± 0.031]				14.8 ± 0.8 [0.583 ± 0.031]				22.3 ± 1.3 [0.878 ± 0.051]				22.3 ± 1.3 [0.878 ± 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 in millimeters [inches]

SS TERMINALS

SSB TERMINALS

SB TERMINALS

FST TERMINALS


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

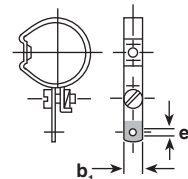
CORE SECTION


GWS 15 ... GWS 500

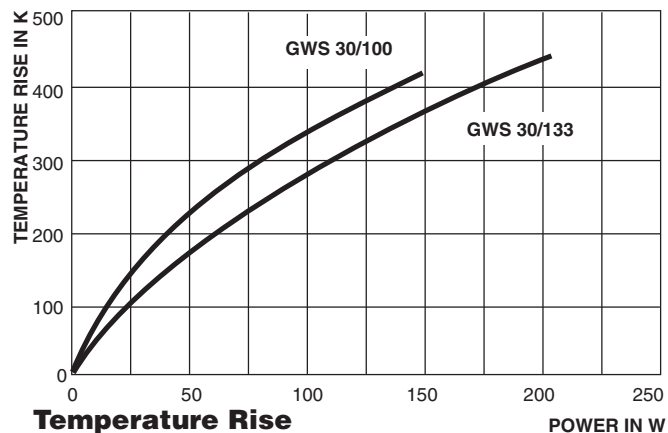
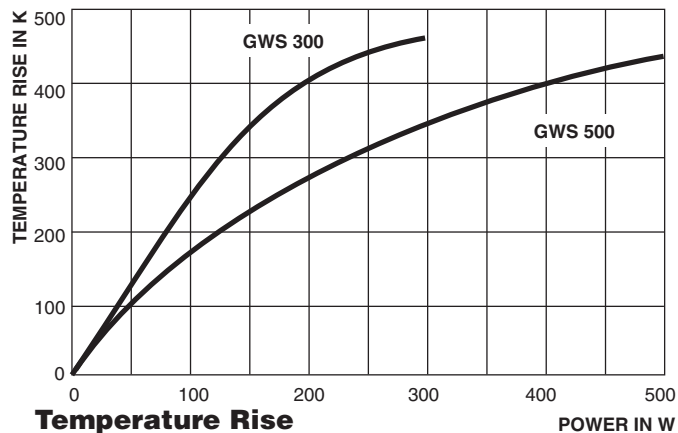
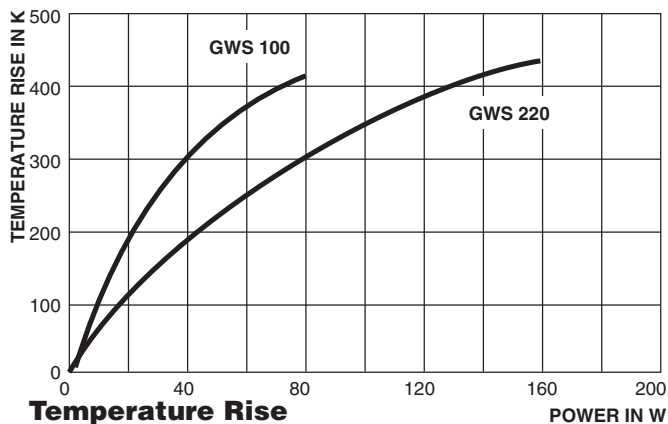
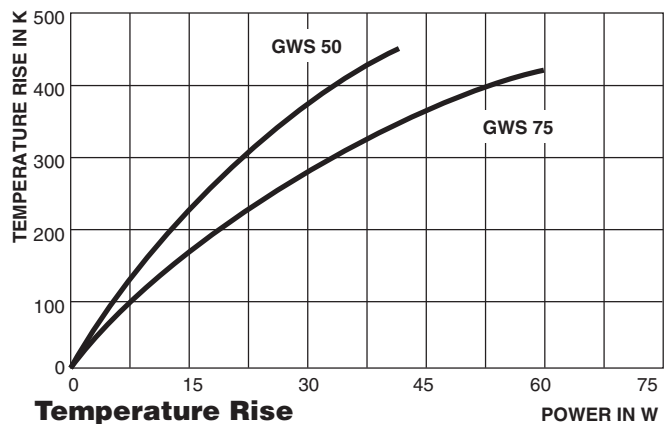
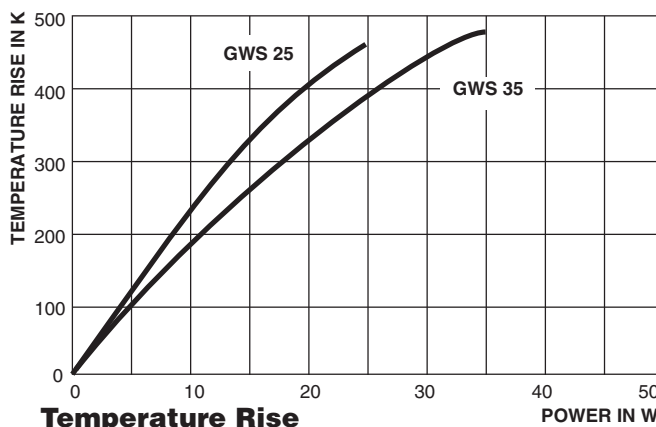
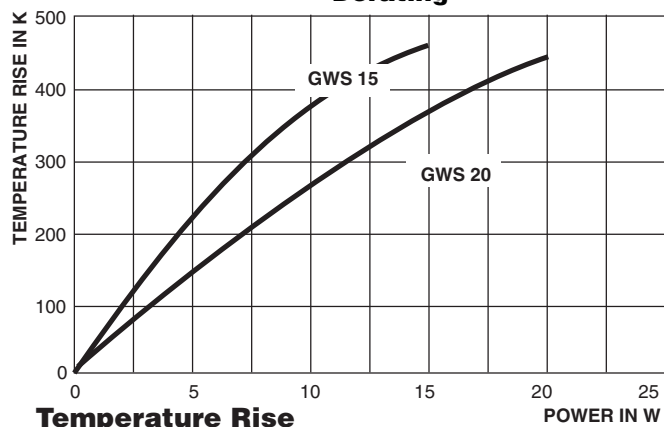
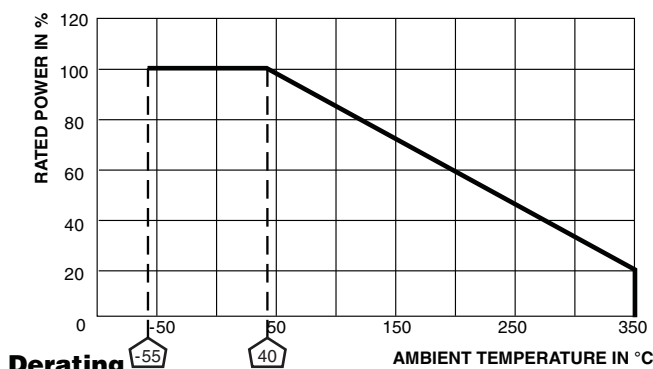
GWS 30/ ...

ADJUSTABLE LUGS

from GWS 25 E



MODEL	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
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			





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