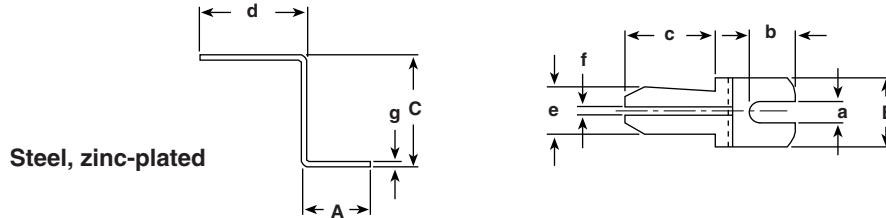


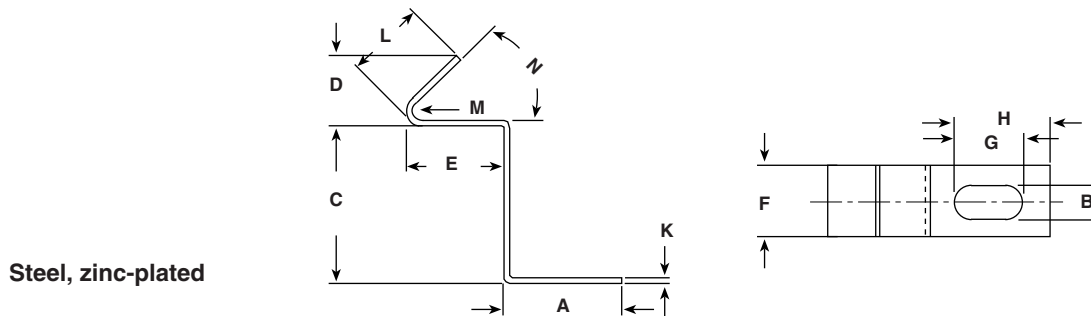
## PUSH-IN BRACKET FORM A

For the assembly of resistors without pins. The retaining brackets are supplied loose.

To prevent rotation the resistors are also available slotted at one end upon request. Depending on the type, this reduces the leakage path (creeping distance) to the clamp by 1.2 mm to 3.5 mm.

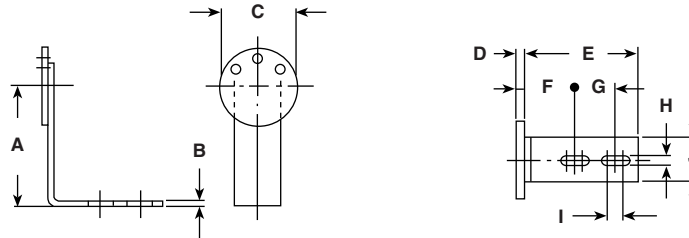


ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]									
			A	B	C	a	b	c	d	e	f	g
401 541 DN 104	BRACKETA00401541	GWS 25, GWS 35, GWS 50, GWS 75, RW 12/..., ZWS 12, ZWS 15	15 [0.591]	10 [0.394]	20.5 [0.807]	4.3 [0.169]	11 [0.433]	16 [0.63]	20 [0.787]	5.9 [0.232]	1.5 [0.059]	1 [0.039]
401 543 DN 104	BRACKETA00401543	ZWS 20, ZWS 35, ZW 13/...	15 [0.591]	16 [0.63]	25.5 [1.004]	5.3 [0.209]	11 [0.433]	21 [0.827]	25 [0.984]	8 [0.315]	1.8 [0.071]	1 [0.039]
401 545 DN 104	BRACKETA00401545	GWS 100, GWS 220, GWS 300	15 [0.591]	16 [0.63]	25.5 [1.004]	5.3 [0.209]	11 [0.433]	21 [0.827]	25 [0.984]	10.5 [0.413]	1.8 [0.071]	1 [0.039]
401 546 DN 104	BRACKETA00401546	GBS 20/..., ZWS 50, ZWS 100, ZWS 150, ZW 20/..., ZBS 20/...	15 [0.591]	16 [0.63]	25.5 [1.004]	5.3 [0.209]	11 [0.433]	21 [0.827]	25 [0.984]	14.5 [0.571]	1.8 [0.071]	1 [0.039]
401 547 DN 104	BRACKETA00401547	GWS 500 ..., GWS 30/..., RW 30/..., GBS 30/..., ZWS 30/..., ZBS 30/...	20 [0.787]	30 [1.181]	30.5 [1.200]	5.3 [0.209]	16 [0.630]	21 [0.827]	25 [0.984]	19 [0.749]	2.5 [0.098]	1.5 [0.059]
401 548 DN 104	BRACKETA00401548	GBS 45/..., ZBS 45/...	20 [0.787]	40 [1.575]	45.5 [1.791]	5.3 [0.209]	16 [0.63]	21 [0.827]	25 [0.984]	31 [1.22]	2.5 [0.098]	1.5 [0.059]



ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]											
			A	B	C	D	E	F	G	H	K	L	M	N
424 339	BRACKETA00424339	GWS 500, GWS 30/..., RW 30/..., GBS 30/..., ZWS 30/..., ZBS 30/...	17.5 [0.689]	5 [0.197]	28.2 [1.11]	16 [0.63]	17.5 [0.689]	12.7 [0.5]	6.5 [0.256]	8.5 [0.335]	0.64 [0.025]	-	-	-
402 996	BRACKETA00402996	RW 20/76, RW 20/102	15.8 [0.622]	4.4 [0.173]	20.6 [0.811]	9.5 [0.374]	12.7 [0.5]	9.5 [0.374]	9 [0.354]	12 [0.472]	0.64 [0.025]	11 [0.433]	1.6 [0.063]	45°

## RETAINING BRACKET



ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]									
			A	B	C	D	E	F	G	H	I	J
406 330	BRACKETR00406330	GBS 60/370, GBS 60/370 E, ZBS 60/370, ZBS 60/370 E	68 [2.677]	3 [0.118]	43.8 - 0.1 [1.724 - 0.004]	3.5 [0.138]	63 [2.48]	28 [1.102]	22 [0.866]	5.5 [0.217]	8 [0.315]	25 [0.984]

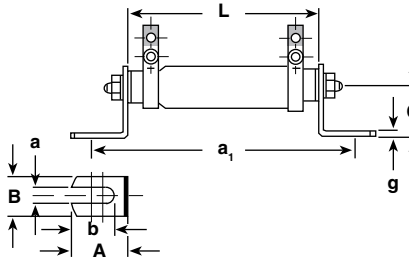
## PUSH-IN BRACKET FORM B

For the assembly of resistors with threaded bolt.

Delivery a) As loose accessories

b) Fully assembled: On request, for ordering code contact marketing.

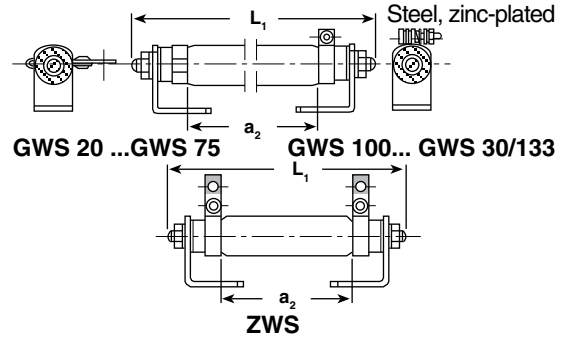
### DESIGN I OUTSIDE BRACKET



Design I and II are a set of:

- 1 piece Screw bolt
- 2 pieces Centering discs
- 2 pieces Brackets form B
- 2 pieces Lock washers
- 2 pieces Hexagonal nuts

### DESIGN II INSIDE BRACKET



ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]									
			L	L <sub>1</sub>	a <sub>1</sub>	a <sub>2</sub>	A	B	C	a	b	g
043 427	BRACKETB00043427	GWS 20	50	61	69	34	15	10	13.5	4.3	11	1.5
043 436	BRACKETB00043436	ZWS 8	[1.969]	[2.402]	[2.717]	[1.339]	[0.591]	[0.394]	[0.531]	[0.169]	[0.433]	[0.059]
043 428	BRACKETB00043428	GWS 25	55	68	74	39	15	10	13.5	4.3	11	1.5
043 437	BRACKETB00043437	ZWS 12	[2.165]	[2.677]	[2.913]	[1.535]	[0.591]	[0.394]	[0.531]	[0.169]	[0.433]	[0.059]
043 429	BRACKETB00043429	GWS 35	62	74	81	46	15	10	13.5	4.3	11	1.5
043 438	BRACKETB00043438	ZWS 15	[2.441]	[2.913]	[3.189]	[1.811]	[0.591]	[0.394]	[0.531]	[0.169]	[0.433]	[0.059]
043 430	BRACKETB00043430	GWS 50	62	74	82	47	15	13	16.5	4.3	11	1.5
043 439	BRACKETB00043439	ZWS 20	[2.441]	[2.913]	[3.228]	[1.85]	[0.591]	[0.512]	[0.65]	[0.169]	[0.433]	[0.059]
043 431	BRACKETB00043431	GWS 75	100	114	120	85	15	13	16.5	4.3	11	1.5
043 440	BRACKETB00043440	ZWS 35	[3.937]	[4.488]	[4.724]	[3.346]	[0.591]	[0.512]	[0.65]	[0.169]	[0.433]	[0.059]
043 432	BRACKETB00043432	GWS 100	100	116	120	85	15	20	20	5.3	11	1.5
043 441	BRACKETB00043441	ZWS 50	[3.937]	[4.567]	[4.724]	[3.346]	[0.591]	[0.787]	[0.787]	[0.209]	[0.433]	[0.059]
043 433	BRACKETB00043433	GWS 220	165	182	185	150	15	20	20	5.3	11	1.5
043 442	BRACKETB00043442	ZWS 100	[6.496]	[7.165]	[7.283]	[9.843]	[0.591]	[0.787]	[0.787]	[0.209]	[0.433]	[0.059]
043 434	BRACKETB00043434	GWS 300	265	283	285	250	15	20	20	5.3	11	1.5
043 443	BRACKETB00043443	ZWS 150	[10.433]	[11.142]	[11.22]	[9.843]	[0.591]	[0.787]	[0.787]	[0.209]	[0.433]	[0.059]
043 435	BRACKETB00043435	GWS 500	330	353	356	310	20	30	30	5.3	15	2
043 444	BRACKETB00043444	ZWS 250	[12.992]	[13.898]	[14.016]	[12.205]	[0.787]	[1.181]	[1.181]	[0.209]	[0.591]	[0.079]
047 163	BRACKETB00047163	GWS 30/100	100	116	126	80	20	30	30	5.3	15	2
047 174	BRACKETB00047174	ZWS 30/100	[3.937]	[4.567]	[4.961]	[3.15]	[0.787]	[1.181]	[1.181]	[0.209]	[0.591]	[0.079]
047 164	BRACKETB00047164	GWS 30/133	133	161	159	113	20	30	30	5.3	15	2
047 175	BRACKETB00047175	ZWS 30/133	[5.236]	[6.339]	[6.26]	[4.449]	[0.787]	[1.181]	[1.181]	[0.209]	[0.591]	[0.079]

### Note

- The use of ceramic centering discs increases the dimensions L, L<sub>1</sub>, a<sub>1</sub> and a<sub>2</sub> about 10 mm [0.394"] with types GWS 25 to GWS 30/133 and ZWS 12 to ZWS 30/133.

## SPRING CLIPS - Suitable for GWK and ZWK

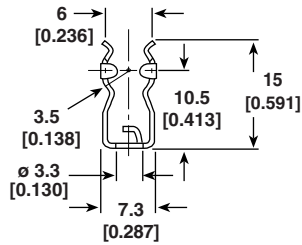
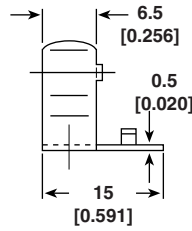


Figure 1: Spring clip



401 549 DN 105

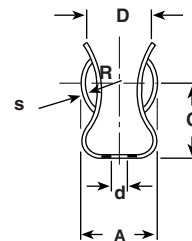
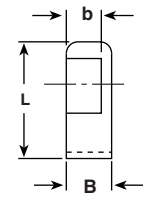
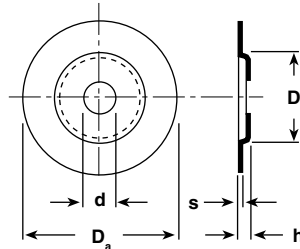


Figure 2: Spring clip



MODEL	SPRING CLIP DIMENSIONS in millimeters [inches]						
	GWK 10 GWK 10 Ni	GWK 20 GWK 20 Ni	ZWK 10 ZWK 10 Ni	GWK 40.. GWK 40 Ni GWK 60 GWK 60 Ni	ZWK 15 ZWK 15 Ni ZWK 20 ZWK 20 Ni	GWK 100 GWK 100 Ni GWK 150 GWK 150 Ni GWK 200 GWK 200 Ni GWK 300 GWK 300 Ni	ZWK 40 ZWK 40 Ni ZWK 60 ZWK 60 Ni ZWK 90 ZWK 90 Ni ZWK 150 ZWK 150 Ni
ORDER REF.	401 549 DN 105	401 550 DN 105	401 551 DN 105	401 553 DN 105			
PART NUMBER	SPRICLIP00401549	SPRICLIP00401550	SPRICLIP00401551	SPRICLIP00401553			
D	See drawing Figure 1	9	9 [0.354]	11.5	11.5 [0.453]	18	18 [0.709]
R		5.5	5.5 [0.217]	7	7 [0.276]	10.5	10.5 [0.413]
A		11	11 [0.433]	15	15 [0.591]	20	20 [0.787]
B		10	10 [0.394]	10	10 [0.394]	15	15 [0.591]
C		13	13 [0.512]	16	16 [0.630]	20	20 [0.787]
d		3.5	3.5 [0.138]	4.5	4.5 [0.177]	4.5	4.5 [0.177]
L		20	20 [0.787]	24	24 [0.945]	31	31 [1.220]
s		0.6	0.6 [0.024]	0.6	0.6 [0.024]	0.8	0.8 [0.031]
b		8.5	8.5 [0.335]	8	8 [0.315]	12.5	12.5 [0.492]

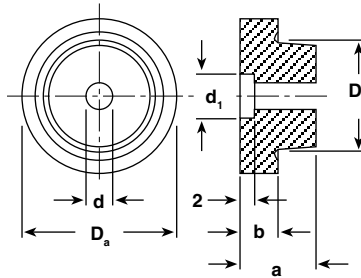
## CENTERING DISCS (steel, zinc-plated) for resistors with through-pin



ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]				
			D <sub>a</sub>	D <sub>i</sub>	d	h	s
401 542 DN 102	CENTDISC00401542	GWS 25, GWS 35, GWS 50, GWS 75, RW12/..., ZWS 12, ZWS 15, ZWS 20, ZWS 35, ZW 13/...	13 [0.512]	5.3 [0.209]	3.2 [0.126]	1.5 [0.059]	0.5 [0.020]
401 528 DN 102	CENTDISC00401528	GWS 100, GWS 220, GWS 300, GBS 20/.. ZWS 50, ZWS 100, ZWS 150	20 [0.787]	9.7 [0.382]	4.5 [0.177]	1.5 [0.059]	0.5 [0.020]
401 529 DN 102	CENTDISC00401529	RW 20/...	20 [0.787]	11.6 [0.457]	4.5 [0.177]	1.5 [0.059]	0.5 [0.020]
401 531 DN 102	CENTDISC00401531	GWS 500, RW 30/..., ZWS 250	30 [1.181]	17.6 [0.693]	5.3 [0.209]	1.5 [0.059]	0.5 [0.020]
414 295 DN 102	CENTDISC00414295	GWS 30/..., GBS 30/..., ZWS 30/..., ZBS 30/...	30 [1.181]	13.8 [0.543]	5.3 [0.209]	1.5 [0.059]	0.5 [0.020]

## CERAMIC CENTERING DISCS (KER 221 DIN 40685)

To increase the leakage path (creeping distance) when assembling resistors with through-pin.

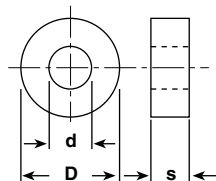


ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]					
			D <sub>a</sub>	D <sub>i</sub>	d	d <sub>i</sub>	a	b
405 499 BN 117	CDISCCER00405499	GWS 25, GWS 35, GWS 50, GWS 75, RW12/.. ZWS 12, ZWS 15, ZWS 20, ZWS 35	10 [0.394]	5.2 [0.205]	3.2 [0.126]	-	6.5 [0.256]	5 [0.197]
401 182 BN 117	CDISCCER00401182	GWS 100, GWS 220, GWS 300, ZWS 50, ZWS 100, ZWS 150, ZW 20/..	20 [0.787]	9.5 [0.374]	5 [0.197]	10 [0.394]	10 [0.394]	5 [0.197]
401 183 BN 117	CDISCCER00401183	GWS 30/..., GBS 30/..., ZWS 30/..., ZBS 30/...	30 [1.181]	13.5 [0.531]	6 [0.236]	12 [0.472]	10 [0.394]	5 [0.197]
401 184 BN 117	CDISCCER00401184	GWS 500, RW 30/..	30 [1.181]	17.3 [0.681]	6 [0.236]	12 [0.472]	10 [0.394]	5 [0.197]
401 185 BN 117	CDISCCER00401185	ZWS 250	30 [1.181]	19.2 [0.756]	6 [0.236]	12 [0.472]	10 [0.394]	5 [0.197]

Ceramic centering discs can be supplied fully assembled with retaining brackets form B and resistors GWS 25 - GWS 30/133, ZWS 12 - ZWS 30/133 which can be delivered completely mounted.

## CENTERING DISCS (KER 110 DIN 40685)

The manufacture of centering discs for resistors of small inside diameter is not feasible. To increase the leakage path (creeping distance) of these types, we supply ceramic discs, centered together with the resistors through the retaining pin.



ORDER REF.	PART NUMBER	SUITABLE FOR	DIMENSIONS in millimeters [inches]		
			D	d	s
400 840 BN 103	TUBE000000400840	GWS 15	6 [0.236]	2.3 [0.091]	5 [0.197]
400 848 BN 103	TUBE000000400867	GWS 20, ZWS 8	8 [0.315]	3.5 [0.138]	5 [0.197]
400 867 BN 103	TUBE000000400848	GWS 25, GWS 35, ZWS 12, ZWS 15	10 [0.394]	5.5 [0.217]	5 [0.197]
400 875 BN 103	TUBE000000400875	GWS 50, GWS 75, RW 12/..., ZWS 20, ZWS 35	13 [0.512]	5.5 [0.217]	5 [0.197]