



Kraus & Naimer
BLUE LINE switchgear

since 1907

2010

G20S/G20

DC-Switch with knife contacts



▶ **High DC switching capacity**

▶ **Self-cleaning and vibration resistant knife contacts**





Kraus & Naimer

BLUE LINE switchgear



► Content

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G20S/G20

► Ideal solution for DC applications

With the **G20S** respectively **G20 Kraus & Naimer** has developed a newly designed DC switch. The compact and rugged disconnecter offers numerous application possibilities including photovoltaic inverters.

The uniquely designed "Knife contacts" result in a switching capacity of 20 Amps at 690V DC (DC-22A) and a high short circuit withstand capability. Finger-proof terminals according to EN 50274 and protection degree IP20 offer maximum safety.

In combination with a standard latching mechanism, the **G20** complies with all regulations required for main switches according to IEC/EN 60204. In addition the G20 is also ideal for AC-applications with high short circuit fault levels, as well as electronic circuitry with low current and voltages.

Of course the **new G-line** can also be combined with many optional extras from the **Kraus & Naimer** product line.

G20S/G20

The most important technical data, according to IEC/EN 60947-3

| | | |
|--------------------------|----|--|
| Rated Insulation Voltage | Ui | 690 V AC |
| Rated Insulation Voltage | Ui | 500 V DC |
| Rated Insulation Voltage | Ui | 1000 V AC / DC possible with series connection |

| | | |
|-----------------------|--------|------|
| Rated Thermal Current | Iu/Ith | 20 A |
|-----------------------|--------|------|

Maximum permissible wire gage

| | |
|--|----------------------------------|
| Single-core or stranded wire | 2 x 2,5 mm ² / AWG 12 |
| Flexible wire | 2 x 2,5 mm ² / AWG 14 |
| Flexible wire with sleeving in acc. with DIN 46228 | 2 x 2,5 mm ² |

► Alternative types of connection

G20S-6
G20-6 → with angled quick connects

G20S-8
G20-8 → terminal extensions for ring type cable lugs



► Electrical data of ON/OFF-Switches

| Rated Utilization Category | Contacts in series Permissible Voltage | | | | | | Rated Operational Current I _e /A | |
|----------------------------|--|-----|-----|------|-----|-----|---|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | G20S | G20 |
| DC-21 A | 250 | 500 | 750 | 1000 | - | - | 20 | 8 |
| | 440 | 880 | - | - | - | - | 13 | 4 |
| DC-22 A | 250 | 500 | 750 | 1000 | - | - | 20 | 2 |
| | 330 | 660 | 990 | - | - | - | 10 | 1 |
| | 440 | 880 | - | - | - | - | 5 | 0,5 |
| DC-23 A | 24 | 48 | 72 | 96 | 120 | 144 | 20 | 20 |
| | 48 | 96 | 144 | 192 | 240 | 288 | 20 | 12 |
| | 60 | 120 | 180 | 240 | 300 | 360 | 15 | 5 |
| | 110 | 220 | 330 | 440 | 550 | 660 | 12 | 3 |
| | 160 | 320 | 480 | 640 | 800 | 960 | 8 | 2 |
| | 250 | 500 | 750 | 1000 | - | - | 5 | 1 |
| | 330 | 660 | 990 | - | - | - | 3 | 0,5 |
| | 440 | 880 | - | - | - | - | 1 | 0,25 |

Dimensions on page 10

G20S/G20-ON/OFF-Switches 0-1

SWITCHES

| G20S G20 | 250 V 1 contact in serie | | 500 V 2 contacts in serie | | 750 V 2+1 contacts ¹⁾ | | 750 V 3 contacts in serie | | 1000 V 4 contacts in serie | |
|-------------|--------------------------------|--------|---------------------------------|--------|--|--------|---------------------------------|--------|----------------------------------|--------|
| | | Stages | | Stages | | Stages | | Stages | | Stages |
| 1 pole | D101 | 1 | D201 | 2 | D351 | 3 | D301 | 3 | D401 | 4 |
| 2 pole | D102 | 2 | D202 | 4 | D352 | 6 | D302 | 6 | D402 | 8 |
| 3 pole | D103 | 3 | D203 | 6 | D353 | 9 | D303 | 9 | D403 | 12 |
| 4 pole | D104 | 4 | D204 | 8 | D354 | 12 | D304 | 12 | - | - |
| 5 pole | D105 | 5 | D205 | 10 | - | - | - | - | - | - |
| 6 pole | D106 | 6 | D206 | 12 | - | - | - | - | - | - |

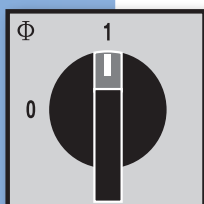
¹⁾ 3 contacts in the circuit: 2 contacts in serie in the +line, 1 contact in the -line

G20S/G20-ON/OFF-Switches 0-1

SWITCH DISCONNECTORS

| G20S G20 | 250 V 1 contact in serie | | 500 V 2 contacts in serie | | 750 V 2+1 contacts ¹⁾ | | 750 V 3 contacts in serie | | 1000 V 4 contacts in serie | |
|-------------|--------------------------------|--------|---------------------------------|--------|--|--------|---------------------------------|--------|----------------------------------|--------|
| | | Stages | | Stages | | Stages | | Stages | | Stages |
| 1 pole | TD3101 | 1 | TD3201 | 2 | TD3351 | 3 | TD3301 | 3 | TD3401 | 4 |
| 2 pole | TD3102 | 2 | TD3202 | 4 | TD3352 | 6 | TD3302 | 6 | TD3402 | 8 |
| 3 pole | TD3103 | 3 | TD3203 | 6 | TD3353 | 9 | TD3303 | 9 | TD3403 | 12 |
| 4 pole | TD3104 | 4 | TD3204 | 8 | TD3354 | 12 | TD3304 | 12 | - | - |
| 5 pole | TD3105 | 5 | TD3205 | 10 | - | - | - | - | - | - |
| 6 pole | TD3106 | 6 | TD3206 | 12 | - | - | - | - | - | - |

¹⁾ 3 contacts in the circuit: 2 contacts in serie in the +line, 1 contact in the -line



► Electrical data of Change Over Switches

| Rated Utilization Category | Contacts in series Permissible Voltage | | | | | | Rated Operational Current Ie/A | |
|----------------------------|--|-----|-----|------|-----|-----|--------------------------------|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | G20S | G20 |
| DC-21 A | 250 | 500 | 750 | 1000 | - | - | 7 | * |
| | 440 | 880 | - | - | - | - | 1 | * |
| DC-22 A | 250 | 500 | 750 | 1000 | - | - | 3 | * |
| | 330 | 660 | 990 | - | - | - | 1 | * |
| DC-23 A | 24 | 48 | 72 | 96 | 120 | 144 | 20 | * |
| | 48 | 96 | 144 | 192 | 240 | 288 | 20 | * |
| | 60 | 120 | 180 | 240 | 300 | 360 | 15 | * |
| | 110 | 220 | 330 | 440 | 550 | 660 | 6 | * |
| | 160 | 320 | 480 | 640 | 800 | 960 | 3 | * |
| | 250 | 500 | 750 | 1000 | - | - | 1 | * |

* Electrical data on request

G20S/G20-Change Over Switches 1-2

SWITCHES

| G20S G20 | 250V 1 contact in serie | Stages | 500V 2 contacts in serie | Stages | 750V 2+1 contacts ¹⁾ | Stages | 750V 3 contacts in serie | Stages | 1000V 4 contacts in serie | Stages |
|----------|-------------------------|--------|--------------------------|--------|---------------------------------|--------|--------------------------|--------|---------------------------|--------|
| 1 pole | D111 | 1 | D211 | 2 | - | - | - | - | - | - |
| 2 pole | D112 | 2 | D212 | 4 | - | - | - | - | - | - |
| 3 pole | D113 | 3 | D213 | 6 | - | - | - | - | - | - |
| 4 pole | D114 | 4 | D214 | 8 | - | - | - | - | - | - |

For the use as supply change over reduced values apply upon request.

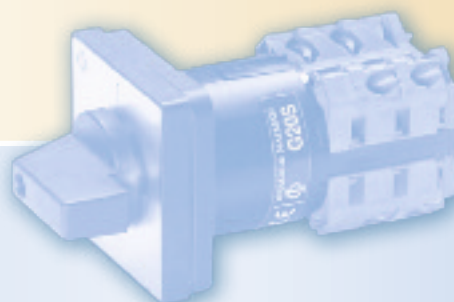
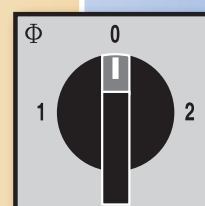
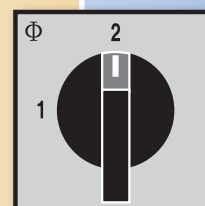
G20S/G20-Change Over Switches with 0 position 1-0-2

SWITCHES

| | | | | | | | | | | |
|--------|------|---|------|----|---|---|------|----|------|---|
| 1 pole | D121 | 2 | D221 | 4 | - | - | D321 | 6 | D421 | 8 |
| 2 pole | D122 | 4 | D222 | 8 | - | - | D322 | 12 | - | - |
| 3 pole | D123 | 6 | D223 | 12 | - | - | - | - | - | - |
| 4 pole | D124 | 8 | - | - | - | - | - | - | - | - |

G20S/G20-Change Over Switches with 0 position 1-0-2 SWITCH DISCONNECTORS

| | | | | | | | | | | |
|--------|--------|---|--------|----|---|---|--------|----|--------|---|
| 1 pole | TD9121 | 2 | TD9221 | 4 | - | - | TD9321 | 6 | TD9421 | 8 |
| 2 pole | TD9122 | 4 | TD9222 | 8 | - | - | TD9322 | 12 | - | - |
| 3 pole | TD9123 | 6 | TD9223 | 12 | - | - | - | - | - | - |
| 4 pole | TD9124 | 8 | - | - | - | - | - | - | - | - |



► Pre-configured Main Switches G20

| Rated Utilization Category | Contacts in series Permissible Voltage | | | | Rated Operational Current Ie/A G20 |
|----------------------------|--|-----|-----|------|------------------------------------|
| | 1 | 2 | 3 | 4 | |
| DC-23A | 24 | 48 | 72 | 96 | 20 |
| | 48 | 96 | 144 | 192 | 12 |
| | 60 | 120 | 180 | 240 | 5 |
| | 110 | 220 | 330 | 440 | 3 |
| | 160 | 320 | 480 | 640 | 2 |
| | 250 | 500 | 750 | 1000 | 1 |

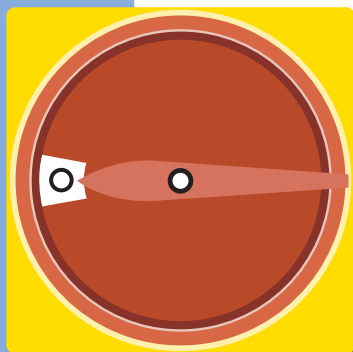
| Pole | Main Switches | Main Switches with Emergency Function | Stages |
|------|-----------------|---------------------------------------|--------|
| 1 | G20 TD1101/01 E | G20 TD2101/01 E | 1 |
| 2 | G20 TD1102/01 E | G20 TD2102/01 E | 2 |
| 3 | G20 TD1103/01 E | G20 TD2103/01 E | 3 |
| 4 | G20 TD1104/01 E | G20 TD2104/01 E | 4 |
| 5 | G20 TD1105/01 E | G20 TD2105/01 E | 5 |
| 6 | G20 TD1106/01 E | G20 TD2106/01 E | 6 |

| | | | |
|---|-----------------|-----------------|----|
| 1 | G20 TD1201/01 E | G20 TD2201/01 E | 2 |
| 2 | G20 TD1202/01 E | G20 TD2202/01 E | 4 |
| 3 | G20 TD1203/01 E | G20 TD2203/01 E | 6 |
| 4 | G20 TD1204/01 E | G20 TD2204/01 E | 8 |
| 5 | G20 TD1205/01 E | G20 TD2205/01 E | 10 |
| 6 | G20 TD1206/01 E | G20 TD2206/01 E | 12 |

| | | | |
|---|-----------------|-----------------|----|
| 1 | G20 TD1301/01 E | G20 TD2301/01 E | 3 |
| 2 | G20 TD1302/01 E | G20 TD2302/01 E | 6 |
| 3 | G20 TD1303/01 E | G20 TD2303/01 E | 9 |
| 4 | G20 TD1304/01 E | G20 TD2304/01 E | 12 |
| 1 | G20 TD1351/01 E | G20 TD2351/01 E | 3 |
| 2 | G20 TD1352/01 E | G20 TD2352/01 E | 6 |
| 3 | G20 TD1353/01 E | G20 TD2353/01 E | 9 |
| 4 | G20 TD1354/01 E | G20 TD2304/01 E | 12 |

| | | | |
|---|-----------------|-----------------|---|
| 1 | G20 TD1401/01 E | G20 TD2401/01 E | 3 |
| 2 | G20 TD1402/01 E | G20 TD2402/01 E | 6 |
| 3 | G20 TD1403/01 E | G20 TD2403/01 E | 9 |

Dimensions on page 9



48 x 48 mm

► Pre-configured Main Switches G20

| Rated Utilization Category | Contacts in series Permissible Voltage | | | | Rated Operational Current Ie/A G20 |
|----------------------------|--|-----|-----|------|------------------------------------|
| | 1 | 2 | 3 | 4 | |
| DC-23 A | 24 | 48 | 72 | 96 | 20 |
| | 48 | 96 | 144 | 192 | 12 |
| | 60 | 120 | 180 | 240 | 5 |
| | 110 | 220 | 330 | 440 | 3 |
| | 160 | 320 | 480 | 640 | 2 |
| | 250 | 500 | 750 | 1000 | 1 |

| Pole | Main Switches | Main Switches with Emergency Function | Stages |
|------|-------------------|---------------------------------------|--------|
| 1 | G20 TD1101/04 FT2 | G20 TD2101/04 FT2 | 1 |
| 2 | G20 TD1102/04 FT2 | G20 TD2102/04 FT2 | 2 |
| 3 | G20 TD1103/04 FT2 | G20 TD2103/04 FT2 | 3 |
| 4 | G20 TD1104/04 FT2 | G20 TD2104/04 FT2 | 4 |
| 5 | G20 TD1105/04 FT2 | G20 TD2105/04 FT2 | 5 |
| 6 | G20 TD1106/04 FT2 | G20 TD2106/04 FT2 | 6 |

| | | | |
|---|-------------------|-------------------|----|
| 1 | G20 TD1201/04 FT2 | G20 TD2201/04 FT2 | 2 |
| 2 | G20 TD1202/04 FT2 | G20 TD2202/04 FT2 | 4 |
| 3 | G20 TD1203/04 FT2 | G20 TD2203/04 FT2 | 6 |
| 4 | G20 TD1204/04 FT2 | G20 TD2204/04 FT2 | 8 |
| 5 | G20 TD1205/04 FT2 | G20 TD2205/04 FT2 | 10 |
| 6 | G20 TD1206/04 FT2 | G20 TD2206/04 FT2 | 12 |

| | | | |
|---|-------------------|-------------------|----|
| 1 | G20 TD1301/04 FT2 | G20 TD2301/04 FT2 | 3 |
| 2 | G20 TD1302/04 FT2 | G20 TD2302/04 FT2 | 6 |
| 3 | G20 TD1303/04 FT2 | G20 TD2303/04 FT2 | 9 |
| 4 | G20 TD1304/04 FT2 | G20 TD2304/04 FT2 | 12 |
| 1 | G20 TD1351/04 FT2 | G20 TD2351/04 FT2 | 3 |
| 2 | G20 TD1352/04 FT2 | G20 TD2352/04 FT2 | 6 |
| 3 | G20 TD1353/04 FT2 | G20 TD2353/04 FT2 | 9 |
| 4 | G20 TD1354/04 FT2 | G20 TD2304/04 FT2 | 12 |

| | | | |
|---|-------------------|-------------------|---|
| 1 | G20 TD1401/04 FT2 | G20 TD2401/04 FT2 | 3 |
| 2 | G20 TD1402/04 FT2 | G20 TD2402/04 FT2 | 6 |
| 3 | G20 TD1403/04 FT2 | G20 TD2403/04 FT2 | 9 |

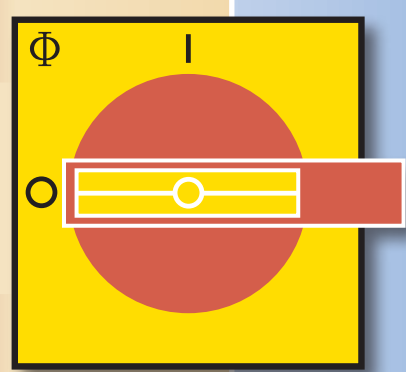
1
max.
250V

2
max.
500V

3
max.
750V

4
max.
1000V

Dimensions on page 9

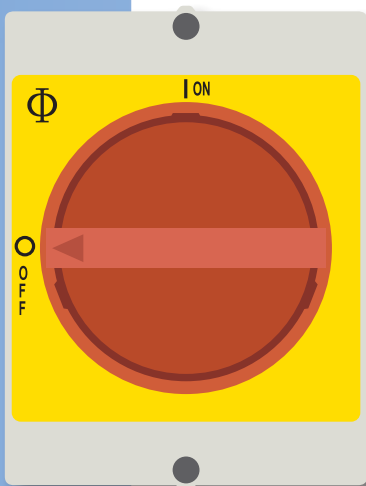


48 x 48 mm

► Pre-configured Main Switches G20

| Rated Utilization Category | Contacts in series Permissible Voltage | | | Rated Operational Current I_e/A G20 |
|----------------------------|---|-----|-----|--|
| | 1 | 2 | 3 | |
| DC-23A | 24 | 48 | 72 | 20 |
| | 48 | 96 | 144 | 12 |
| | 60 | 120 | 180 | 5 |
| | 110 | 220 | 330 | 3 |
| | 160 | 320 | 480 | 2 |
| | 250 | 500 | 750 | 1 |

Dimensions
on page 9



1
max.
250V

2
max.
500V

3
max.
750V

| Pole | Main Switches | Main Switches with Emergency Function | Height |
|------|---------------------|--|--------|
| 1 | G20 TD1101/33 KS51V | G20 TD2101/33 KS51V | A |
| 2 | G20 TD1102/33 KS51V | G20 TD2102/33 KS51V | B |
| 3 | G20 TD1103/33 KS51V | G20 TD2103/33 KS51V | B |

| | | | |
|---|---------------------|---------------------|---|
| 1 | G20 TD1201/33 KS51V | G20 TD2201/33 KS51V | B |
|---|---------------------|---------------------|---|

| | | | |
|---|---------------------|---------------------|---|
| 1 | G20 TD1301/33 KS51V | G20 TD2301/33 KS51V | B |
|---|---------------------|---------------------|---|

A: Height: 81 mm
B: Height: 90 mm

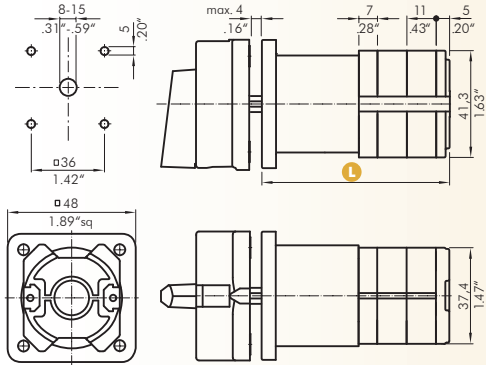


► Dimensions | Pre-configured Main Switches G20

G20 E

Four Hole Panel Mounting

lockable handle disk



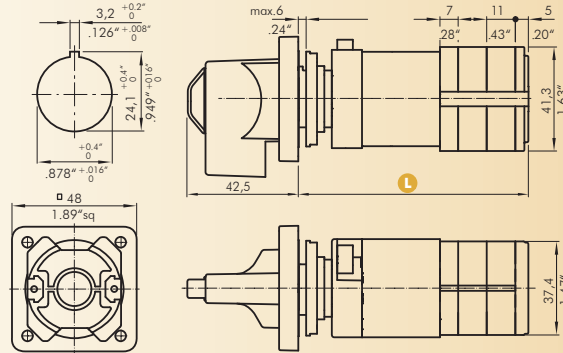
L G20

| Fluchten | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 42 | 53 | 64 | 89,8 | 100,8 | 111,8 | 122,8 | 133,8 | 144,8 | 155,8 | 166,8 | 177,8 |
| Zoll | 1.65" | 2.09" | 2.52" | 3.54" | 3.97" | 4.40" | 4.83" | 5.27" | 5.70" | 6.13" | 6.57" | 7" |

G20 FT2

Single Hole Mounting

handle with lock-bar

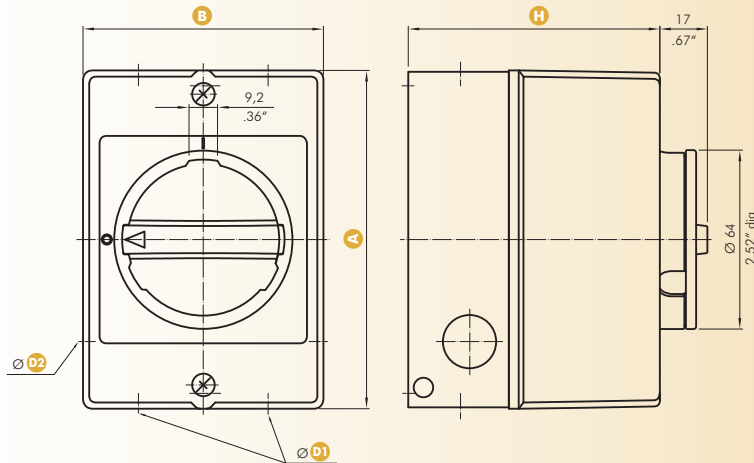


L G20

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 60.2 | 71.2 | 82.2 | 108 | 119 | 130 | 141 | 152 | 163 | 174 | 185 | 196 |
| 2.37" | 2.80" | 3.24" | 4.25" | 4.69" | 5.12" | 5.55" | 5.98" | 6.42" | 6.85" | 7.28" | 7.72" |

G20 KS51V

Enclosure



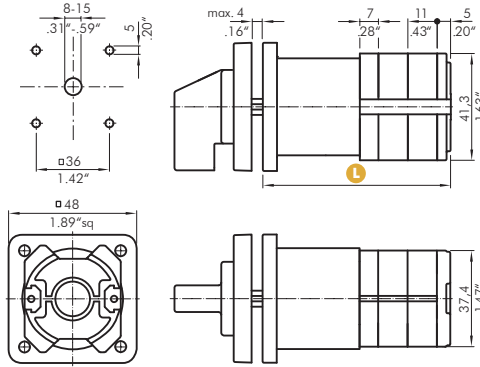
Enclosure KS51V

| | A | B | D1 | D2 | H _A | H _B |
|------|-------|-------|-------|-------|----------------|----------------|
| mm | 121 | 86 | 20.5 | 20.5 | 81 | 90 |
| inch | 4.76" | 3.39" | 0.81" | 0.81" | 3.19" | 3.54" |

► Dimensions | G20S/G20

G20S/G20 E

Four Hole Panel Mounting



L G20S

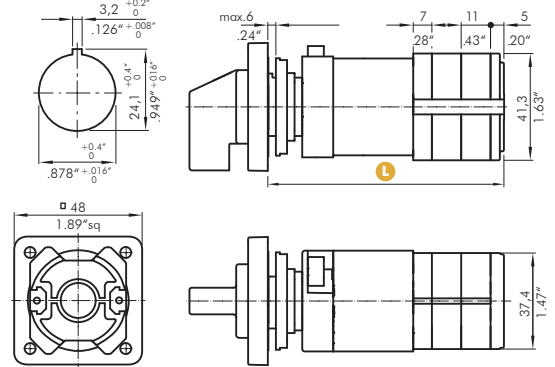
| stages | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 59.3 | 70.3 | 81.3 | 92.3 | 103.3 | 114.3 | 125.3 | 136.3 | 147.3 | 158.3 | 169.3 | 180.3 |
| inch | 2.33" | 2.77" | 3.20" | 3.63" | 4.07" | 4.50" | 4.93" | 5.37" | 5.80" | 6.23" | 6.67" | 7.10" |

L G20

| stages | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 42 | 53 | 64 | 89.8 | 100.8 | 111.8 | 122.8 | 133.8 | 144.8 | 155.8 | 166.8 | 177.8 |
| inch | 1.65" | 2.09" | 2.52" | 3.54" | 3.97" | 4.40" | 4.83" | 5.27" | 5.70" | 6.13" | 6.57" | 7" |

G20S/G20 FT2

Single Hole Mounting



L G20S

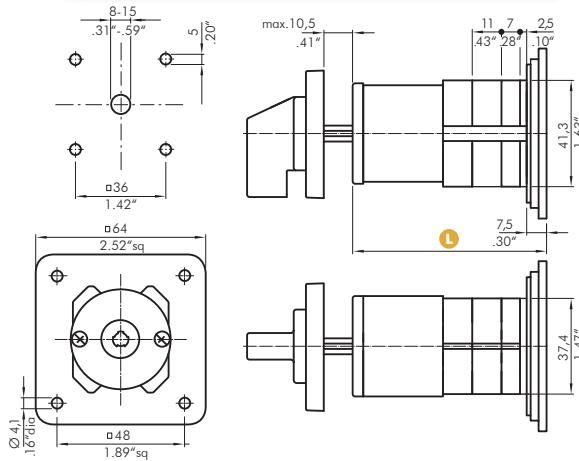
| stages | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 77.5 | 88.5 | 99.5 | 110.5 | 121.5 | 132.5 | 143.5 | 154.5 | 165.5 | 176.5 | 187.5 | 198.5 |
| inch | 3.05" | 3.48" | 3.92" | 4.35" | 4.78" | 5.22" | 5.65" | 6.08" | 6.52" | 6.95" | 7.38" | 7.81" |

L G20

| stages | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 60.2 | 71.2 | 82.2 | 108 | 119 | 130 | 141 | 152 | 163 | 174 | 185 | 196 |
| inch | 2.37" | 2.80" | 3.24" | 4.25" | 4.69" | 5.12" | 5.55" | 5.98" | 6.42" | 6.85" | 7.28" | 7.72" |

G20S/G20 VE

Base Mounting – Four Hole Mounting



L G20S

| stages | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 62 | 73 | 84 | 95 | 106 | 117 | 128 | 139 | 150 | 161 | 172 | 183 |
| inch | 2.44" | 2.87" | 3.31" | 3.74" | 4.17" | 4.61" | 5.04" | 5.47" | 5.91" | 6.34" | 6.77" | 7.20" |

L G20

| stages | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm | 44.7 | 55.7 | 66.7 | 92.5 | 103.5 | 114.5 | 125.5 | 136.5 | 147.5 | 158.5 | 169.5 | 180.5 |
| inch | 1.76" | 2.19" | 2.63" | 3.64" | 4.07" | 4.51" | 4.94" | 5.37" | 5.81" | 6.24" | 6.67" | 7.11" |



Catalog 100



Catalog 101



Catalog 110



Catalog 120



Catalog 130



Catalog 150



Catalog 200



Catalog 302



Catalog 500



**Main Switches
with spring clamp
terminals**

Catalog 100: C-, CA-, CAD-, CL-, L-Switches: 10A–2400A

Catalog 101: Optional Extras and Enclosures

Catalog 110: A-Switches: 6A - 25A

Catalog 120: CG-, CH-, CHR-Switches: 10A–25A

Catalog 130: DH-, DHR-, DK-, DKR-, D-Switches: 20mA–25A/30mV–690V

Catalog 150: KG/KH-Switches: 20A–315A

Catalog 200: Contactors 16 A–115 A, Motor Starters 1,5 kW–55 kW

Catalog 302: Push Buttons and Pilot Lights, 22.5mm

Catalog 500: Main Switches, Maintenance Switches, Switch Disconnectors

Main Switches and Switch Disconnectors KC Switch Series 16A–32A



WORLDWIDE SYMBOL
FOR QUALITY SWITCHGEAR



Your Sales Contact

"" www.elsnab.ru

Kraus & Naimer Production GmbH

1181 Vienna · Schumanngasse 31-39 · PF 0046
Telefon: +43 1 404 06 · Telefax: +43 1 404 06 255
knw@krausnaimer.com · www.krausnaimer.com
124765 d · UID-Nr. ATU 14707101