

ANGLE/INLINE VALVE WITH SOFT-PUMP FUNCTION, SERIES 29.0/29.2

For pumping and venting of HV systems when few turbulences, particles, substrate movements and condensation are important.



DN 25 – 50

DN 63 – 160

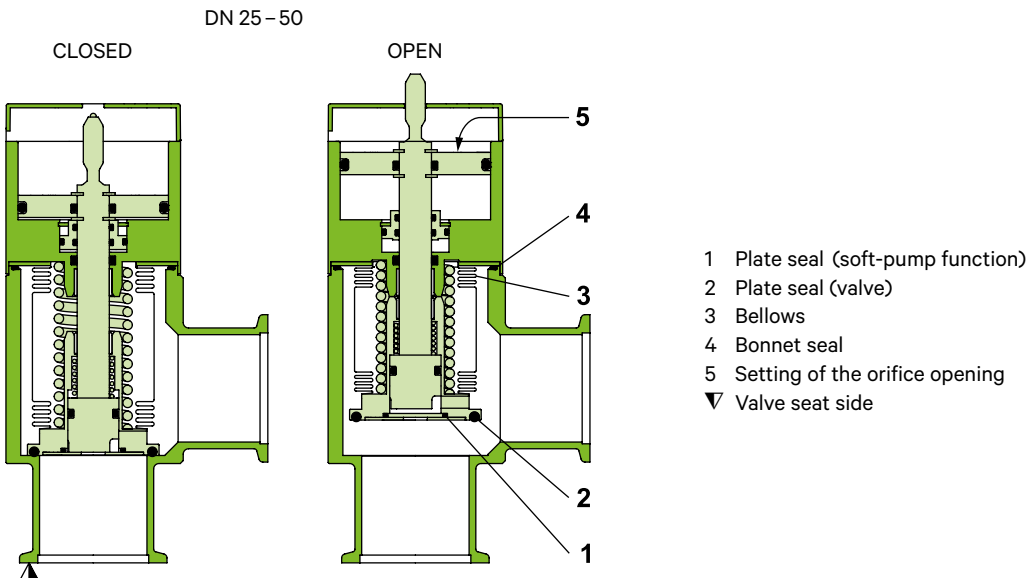
Resistant against differential pressure

Setting of the orifice opening by means of a scale

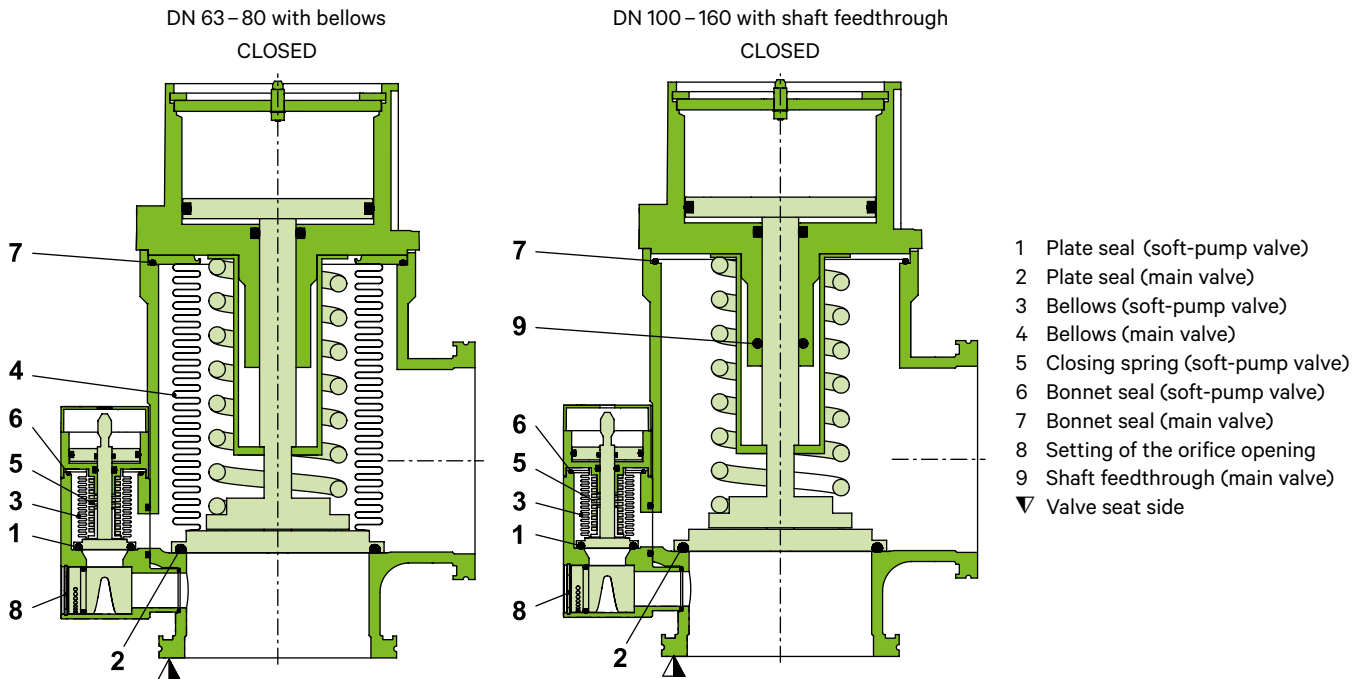
MAIN FEATURES

| | |
|------------------------|---|
| Sizes | DN 25 – 160 mm (1" – 6") |
| Actuators | pneumatic DN 25 – 160: single acting with closing spring (NC) pneumatic DN 100 – 160: main valve double acting, soft-pump valve single acting with closing spring (NC) |
| Body material | aluminum or stainless steel |
| Feedthrough main valve | DN 25 – 80 bellows DN 100 – 160 shaft feedthrough |
| Standard flanges | ISO-KF, ISO-K |

FUNCTIONAL PRINCIPLE



FUNCTIONAL PRINCIPLE



TECHNICAL DATA (ANGLE AND INLINE VALVES)

| | | | |
|------------------------------------|-------------------------------------|----------------|--|
| Leak rate | Valve body, valve seat | | $< 1 \cdot 10^{-9}$ mbar ls ⁻¹ |
| Pressure range | | DN 25 – 50 | $1 \cdot 10^{-8}$ mbar to 1.2 bar (abs) |
| | | DN 63 – 80 | $1 \cdot 10^{-8}$ mbar to 4 bar (abs) |
| | | DN 100 – 160 | $1 \cdot 10^{-7}$ mbar to 2 bar (abs) |
| Differential pressure on the plate | In opening direction | | ≤ 1.2 bar |
| | In closing direction | DN 25 – 50 | ≤ 1.2 bar |
| | | DN 63 – 80 | ≤ 4.0 bar |
| | DN 100 – 160 | ≤ 2.0 bar | |
| Differential pressure at opening | | | ≤ 1 bar |
| Cycles until first service | | DN 25 – 50 | 2 million |
| | | DN 63 – 80 | 3 million |
| | | DN 100 – 160 | 1 million |
| Temperature ¹⁾ | Valve body | | ≤ 150 °C |
| | Actuator | DN 25 – 50 | ≤ 120 °C |
| | | DN 63 – 160 | ≤ 80 °C |
| | Solenoid valve & position indicator | | ≤ 80 °C |
| Material | Main valve body: aluminum | DN 25 – 63 | EN AW-6060 (3.3206), EN AW-6061 (3.3211), EN AW-6063 (3.3206), EN AW-6082 (3.2315) |
| | | DN 80 – 160 | EN AC-42000 |
| | Main valve body: stainless steel | DN 25 – 160 | AISI 304 (1.4301), AISI 316L (1.4404) |
| | Soft-pump valve body | | EN AW-6060 (3.3206), EN AW-6061 (3.3211), EN AW-6063 (3.3206), EN AW-6082 (3.2315) |
| | Plate | | AISI 316L (1.4404, 1.4435) or AISI 304L (1.4306) |
| | Bellows | | AISI 316L (1.4404, 1.4435), AISI 316Ti (1.4571) |
| Seal | Bonnet, plate | | FKM (Viton®) |

¹⁾ Maximum values: depending on operating conditions and sealing materials.

| | | |
|------------------------------------|----------------------------|--|
| Feedthrough (main valve) | DN 25 – 80 DN 100 – 160 | bellows shaft feedthrough |
| Mounting position | | any |
| Solenoid valve | DN 25 – 80 DN 63 – 160 | 24 V DC, 2.5 W (others on request) 24 V DC, 9.0 W (others on request) |
| Position indicator: contact rating | Voltage Current | 5 – 50 V AC / DC 5 – 100 mA |
| Valve position indication | | visual (mechanical) |

ANGLE VALVES

| with pneumatic actuator, single acting with closing spring (NC) | | | | | | | | | | | | |
|---|------|---------------------------------|---|---|----------|---------------------------------|-----------------|--------------|-----------------------|------|------------------------------|-------|
| DN (nominal I.D.) | | Conductance (molecular flow) | Opening range of orifice of the soft-pump valve | Compressed air min. – max. overpressure | | Volume of pneumatic actuator | | Closing time | Weight | | | |
| mm | inch | | | bar | psi | l | ft ³ | | With aluminum body | | With stainless steel body | |
| | | ls ⁻¹ | mm ² | | | | | s | kg | lbs | kg | lbs |
| 25 | 1 | 14 | 1.7 – 20 | 4.5 – 7 | 65 – 102 | 0.011 | 0.0004 | 0.20 | 0.60 | 1.32 | 0.70 | 1.54 |
| 40 | 1½ | 45 | 1.2 – 40 | 4 – 8 | 58 – 116 | 0.035 | 0.0012 | 0.55 | 1.20 | 2.65 | 1.40 | 3.09 |
| 50 | 2 | 80 | 1.5 – 50 | 4 – 8 | 58 – 116 | 0.047 | 0.0017 | 0.65 | 1.90 | 4.19 | 2.10 | 4.63 |
| 63 | 2½ | 160 | 9 – 270 | 4 – 8 | 58 – 116 | 0.112 | 0.0040 | 0.70 | 4.20 | 9.26 | 2.60 | 5.73 |
| 80 | 3 | 200 | 9 – 270 | 4 – 8 | 58 – 116 | 0.112 | 0.0040 | 0.70 | 3.90 | 8.60 | – | – |
| 100 | 4 | 440 | 9 – 270 | 4.5 – 7 | 65 – 102 | 0.330 | 0.0117 | 1 | 9.5 | 21 | 12 | 26 |
| 160 | 6 | 1000 | 9 – 270 | 4.5 – 7 | 65 – 102 | 1.050 | 0.0371 | 1.5 | 16.50 | 36 | 15.80 | 34.80 |

| with pneumatic actuator, double acting | | | | | | | | | | | | |
|--|------|------------------|-----------------|---------|----------|-------|-----------------|-----|----|-----|----|-----|
| mm | inch | ls ⁻¹ | mm ² | bar | psi | l | ft ³ | s | kg | lbs | kg | lbs |
| 100 | 4 | 440 | 9 – 270 | 4.5 – 7 | 65 – 102 | 0.330 | 0.0117 | 1 | 9 | 20 | 12 | 26 |
| 160 | 6 | 1000 | 9 – 270 | 4.5 – 7 | 65 – 102 | 1.050 | 0.0371 | 1.5 | 13 | 29 | 16 | 35 |

INLINE VALVES

| with pneumatic actuator, single acting with closing spring (NC) | | | | | | | | | | | | |
|---|------|---------------------------------|---|---|----------|---------------------------------|-----------------|--------------|-----------------------|------|------------------------------|------|
| DN (nominal I.D.) | | Conductance (molecular flow) | Opening range of orifice of the soft-pump valve | Compressed air min. – max. overpressure | | Volume of pneumatic actuator | | Closing time | Weight | | | |
| mm | inch | | | bar | psi | l | ft ³ | | With aluminum body | | With stainless steel body | |
| | | ls ⁻¹ | mm ² | | | | | s | kg | lbs | kg | lbs |
| 25 | 1 | 14 | 1.7 – 20 | 4.5 – 7 | 65 – 102 | 0.011 | 0.0004 | 0.20 | 0.76 | 1.68 | 0.45 | 0.99 |
| 40 | 1½ | 45 | 1.2 – 40 | 4 – 8 | 58 – 116 | 0.035 | 0.0012 | 0.55 | 1.60 | 3.53 | 1.45 | 3.20 |
| 50 | 2 | 80 | 1.5 – 50 | 4 – 8 | 58 – 116 | 0.047 | 0.0017 | 0.65 | 2.78 | 6.13 | 2.30 | 5.07 |

OPTIONS, CUSTOMIZED SOLUTIONS

ACTUATOR (manual & pneumatic)

- Other solenoid valve voltage (standard 24VDC)
- Bakeable position indicator: actuator bakeable to 120 °C

VALVE

- CF flanges
- Other sealing materials
- Customer specified bodies

SPARE PARTS

We can offer a wide variety of spare parts. Please contact us for details and an offer.

Thank you for specifying the fabrication number of the valve indicated on the identification tag when asking for spare parts.

ACCESSORIES

Flange connections for installation of the valve: see series 31

ORDERING INFORMATION FOR STANDARD VALVES

Valve with pneumatic actuator
single acting with closing spring (NC)
without solenoid valve
without position indicator

| | DN | | Ordering numbers | | | |
|--------|-----|------|------------------|-----------------|--------------|-----------------|
| | mm | inch | Angle valve | | Inline valve | |
| | | | aluminum | stainless steel | aluminum | stainless steel |
| ISO-KF | 25 | 1 | 29028-KA11 | 29028-KE11 | 29128-KA11 | 29128-KE11 |
| | 40 | 1½ | 29032-KA11 | 29032-KE11 | 29132-KA11 | 29132-KE11 |
| | 50 | 2 | 29034-KA11 | 29034-KE11 | 29134-KA11 | 29134-KE11 |
| ISO-K | 63 | 2½ | 29036-QA11 | 29036-QE11 | - | - |
| | 80 | 3 | 29038-QA11 | - | - | - |
| | 100 | 4 | 29240-QA11 | on request | - | - |
| | 160 | 6 | 29244-QA11 | on request | - | - |

without solenoid valve, with position indicator: 29 . . . - . . **21**

with solenoid valve, without position indicator: 29 . . . - . . **31** (specify control voltage)

with solenoid valve, with position indicator: 29 . . . - . . **41** (specify control voltage)

Valve with pneumatic actuator
main valve: double acting
soft-pump valve: single acting (NC)
without solenoid valve
without position indicator

| | DN | | Ordering numbers | |
|-------|-----|------|------------------|-----------------|
| | mm | inch | Angle valve | |
| | | | aluminum | stainless steel |
| ISO-K | 100 | 4 | 29240-QA14 | 29240-QE14 |
| | 160 | 6 | 29244-QA14 | 29244-QE14 |

without solenoid valve, with position indicator: 292 . . -Q . **24**

with solenoid valve, without position indicator: 292 . . -Q . **34** (specify control voltage)

with solenoid valve, with position indicator: 292 . . -Q . **44** (specify control voltage)

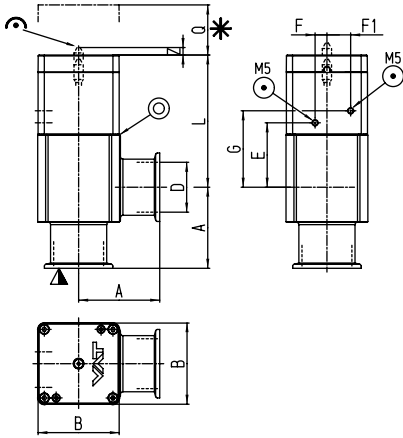
ORDERING INFORMATION FOR VALVES WITH OPTIONS

Basic ordering number plus «-X»: -X to be specified

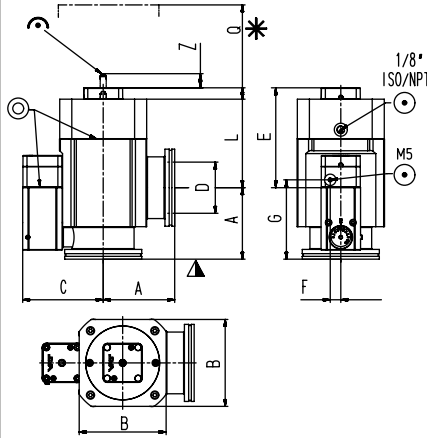
Example: 29028-KA41-X, X = position indicator bakeable to 120 °C

DIMENSIONS

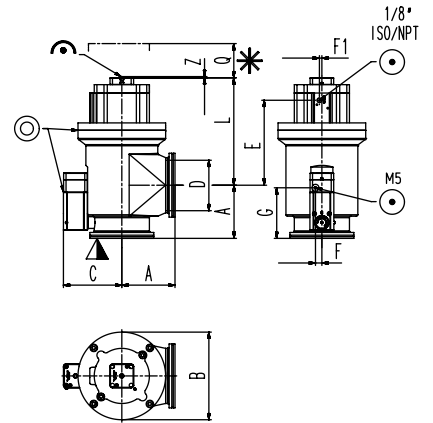
**Aluminum angle valve
with pneumatic actuator,
single acting with closing spring (NC)**
DN 25 – 50 (1" – 2") ISO-KF



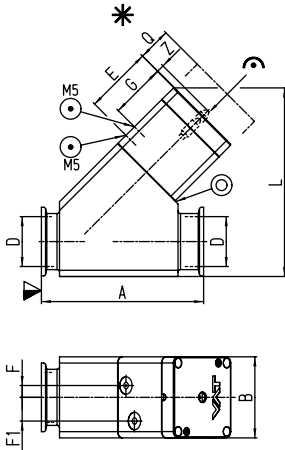
**Aluminum angle valve
with pneumatic actuator,
single acting with closing spring (NC)**
DN 63 (2½") ISO-K



**Aluminum angle valve
with pneumatic actuator,
single acting with closing spring (NC)
double acting**
DN 80 – 160 (3" – 6") ISO-K
DN 100 – 160 (4" – 6") ISO-K



**Aluminum inline valve
with pneumatic actuator,
single acting with closing spring (NC)**
DN 25 – 50 (1" – 2") ISO-KF



| DN | Angle valve | | | | | | | | | Inline valve | | |
|------|--|-------|--------|-------|--------|--------|---------------|--------|--------|--------------|------|-------|
| | single acting with closing spring (NC) | | | | | | double acting | | | 25 | 40 | 50 |
| mm | 25 | 40 | 50 | 63 | 80 | 100 | 160 | 100 | 160 | 25 | 40 | 50 |
| inch | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | 4 | 6 | 1 | 1½ | 2 |
| A | 50 | 65 | 70 | 88 | 90 | 108 | 138 | 108 | 138 | 100 | 130 | 178 |
| inch | 1.97 | 2.56 | 2.76 | 3.46 | 3.54 | 4.25 | 5.43 | 4.25 | 5.43 | 3.94 | 5.12 | 7.01 |
| B | 48 | 65 | 77 | 107 | 126.60 | 178 | 220 | 178 | 220 | 48 | 65 | 77 |
| inch | 1.89 | 2.56 | 3.03 | 4.21 | 4.98 | 5.43 | 8.66 | 5.43 | 8.66 | 1.89 | 2.56 | 3.03 |
| C | - | - | - | 98.80 | 107.30 | 118.30 | 143.30 | 118.30 | 143.30 | - | - | - |
| inch | - | - | - | 3.89 | 4.22 | 4.66 | 5.64 | 4.66 | 5.64 | - | - | - |
| D | 25 | 40 | 50 | 63 | 80 | 102 | 153 | 102 | 153 | 25 | 40 | 50 |
| inch | 0.98 | 1.57 | 1.97 | 2.48 | 3.15 | 4.02 | 6.02 | 4.02 | 6.02 | 0.98 | 1.57 | 1.97 |
| E | 40 | 51 | 59 | 71.40 | 71.40 | 172.60 | 166 | 172.60 | 166 | 49.50 | 55 | 57 |
| inch | 1.57 | 2 | 2.32 | 2.81 | 2.81 | 6.80 | 6.54 | 6.80 | 6.54 | 1.95 | 2.17 | 2.24 |
| F | 9.50 | 12.50 | 13.60 | 13 | 13 | 13 | 13 | 13 | 13 | 9.50 | 14 | 13.60 |
| inch | 0.37 | 0.49 | 0.54 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.37 | 0.55 | 0.54 |
| F1 | 13 | 15 | 15 | - | - | 5 | 5 | 5 | 5 | 13 | 15 | 15 |
| inch | 0.51 | 0.59 | 0.59 | - | - | 0.20 | 0.20 | 0.20 | 0.20 | 0.51 | 0.59 | 0.59 |
| G | 49 | 59 | 66 | 97.70 | 100 | 102.80 | 98.70 | 102.80 | 98.70 | 40.50 | 47 | 50 |
| inch | 1.93 | 2.32 | 2.60 | 3.85 | 3.94 | 4.05 | 3.89 | 4.05 | 3.89 | 1.59 | 1.85 | 1.97 |
| L | 89.50 | 106 | 115.70 | 109 | 109 | 218.30 | 221.50 | 218.30 | 221.50 | 121 | 154 | 184 |
| inch | 3.52 | 4.17 | 4.56 | 4.29 | 4.29 | 8.59 | 8.72 | 8.59 | 8.72 | 4.76 | 6.06 | 7.24 |
| Q | 46 | 77 | 85 | 105 | 115 | 170 | 200 | 170 | 200 | 46 | 77 | 85 |
| inch | 1.81 | 3.03 | 3.35 | 4.13 | 4.53 | 6.69 | 7.87 | 6.69 | 7.87 | 1.81 | 3.03 | 3.35 |
| Z | 5.60 | 11 | 12.50 | 31.40 | 31.40 | 2.40 | 2.40 | 2.40 | 2.40 | 5.60 | 11 | 12.50 |
| inch | 0.22 | 0.43 | 0.49 | 1.24 | 1.24 | 0.09 | 0.09 | 0.09 | 0.09 | 0.22 | 0.43 | 0.49 |

▽ Valve seat side

* Required for dismantling

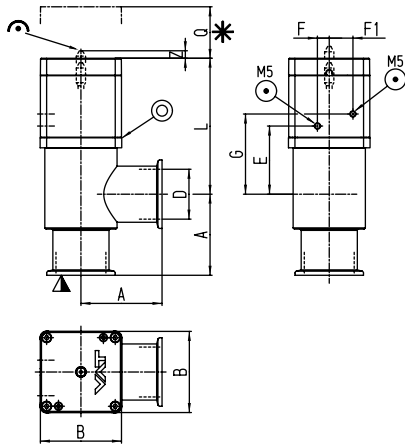
⊙ Compressed air connection

⊕ Mechanical position indication

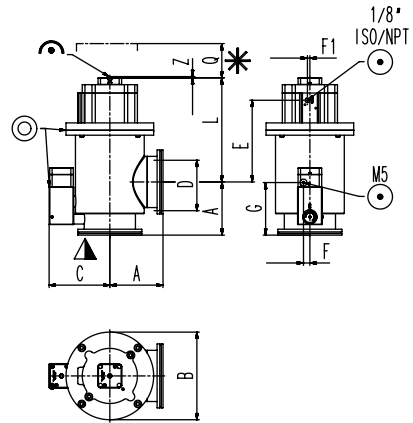
⊙ Leak detection hole

DIMENSIONS

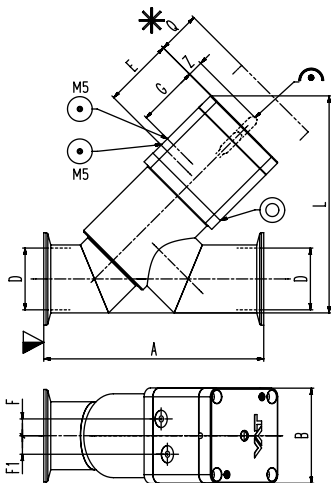
**Stainless steel angle valve
with pneumatic actuator,
single acting with closing spring (NC)
DN 25 – 50 (1" – 2") ISO-KF**



**Stainless steel angle valve
with pneumatic actuator,
single acting with closing spring (NC)
DN 63 – 160 (2½" – 6") ISO-K
double acting
DN 100 – 160 (4" – 6") ISO-K**



**Aluminum inline valve
with pneumatic actuator,
single acting with closing spring (NC)
DN 25 – 50 (1" – 2") ISO-KF**



- ▼ Valve seat side
- * Required for dismantling
- ⊙ Compressed air connection
- ↻ Mechanical position indication
- ⊙ Leak detection hole

| DN | Angle valve | | | | | | | | Inline valve | | |
|------|--|-------|--------|-------|---------------|--------|--------|--------|--------------|------|-------|
| | single acting with closing spring (NC) | | | | double acting | | | | 25 | 40 | 50 |
| mm | 25 | 40 | 50 | 63 | 100 | 160 | 100 | 160 | 25 | 40 | 50 |
| inch | 1 | 1½ | 2 | 2½ | 4 | 6 | 4 | 6 | 1 | 1½ | 2 |
| A | 50 | 65 | 70 | 88 | 108 | 138 | 108 | 138 | 100 | 130 | 178 |
| inch | 1.97 | 2.56 | 2.76 | 3.46 | 4.25 | 5.43 | 4.25 | 5.43 | 3.94 | 5.12 | 7.01 |
| B | 48 | 65 | 77 | 123 | 178 | 220 | 178 | 220 | 48 | 65 | 77 |
| inch | 1.89 | 2.56 | 3.03 | 4.84 | 5.43 | 8.66 | 5.43 | 8.66 | 1.89 | 2.56 | 3.03 |
| C | - | - | - | 98.30 | 123.30 | 143 | 123.30 | 143 | - | - | - |
| inch | - | - | - | 3.87 | 4.85 | 5.63 | 4.85 | 5.63 | - | - | - |
| D | 25 | 40 | 50 | 63 | 102 | 153 | 102 | 153 | 25 | 40 | 50 |
| inch | 0.98 | 1.57 | 1.97 | 2.48 | 4.02 | 6.02 | 4.02 | 6.02 | 0.98 | 1.57 | 1.97 |
| E | 43 | 54 | 52 | 71 | 166 | 172.50 | 166 | 172.50 | 49.50 | 55 | 57 |
| inch | 1.69 | 2.13 | 2.05 | 2.80 | 6.54 | 6.80 | 6.54 | 6.80 | 1.95 | 2.17 | 2.24 |
| F | 9.50 | 12.50 | 13.60 | 13 | 13 | 13 | 13 | 13 | 9.50 | 14 | 13.60 |
| inch | 0.37 | 0.49 | 0.54 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.37 | 0.55 | 0.54 |
| F1 | 13 | 15 | 15 | - | 5 | 5 | 5 | 5 | 13 | 15 | 15 |
| inch | 0.51 | 0.59 | 0.59 | - | 0.20 | 0.20 | 0.20 | 0.20 | 0.51 | 0.59 | 0.59 |
| G | 52 | 62 | 69 | 98 | 106.80 | 114.30 | 106.80 | 114.30 | 40.50 | 47 | 50 |
| inch | 2.05 | 2.44 | 2.72 | 3.86 | 4.20 | 4.50 | 4.20 | 4.50 | 1.59 | 1.85 | 1.97 |
| L | 92.80 | 109 | 118.70 | 109 | 211.50 | 228 | 211.50 | 228 | 131 | 163 | 176 |
| inch | 3.65 | 4.29 | 4.67 | 4.29 | 8.33 | 8.98 | 8.33 | 8.98 | 5.16 | 6.42 | 6.93 |
| Q | 46 | 77 | 85 | 115 | 170 | 200 | 170 | 200 | 46 | 77 | 85 |
| inch | 1.81 | 3.03 | 3.35 | 4.53 | 6.69 | 7.87 | 6.69 | 7.87 | 1.81 | 3.03 | 3.35 |
| Z | 5.60 | 11 | 12.50 | 31.40 | 2.40 | 2.40 | 2.40 | 2.40 | 5.60 | 11 | 12.50 |
| inch | 0.22 | 0.43 | 0.49 | 1.24 | 0.09 | 0.09 | 0.09 | 0.09 | 0.22 | 0.43 | 0.49 |