



### principle characteristics

Based on the thermal principle, the enclosed probe contains two resistors, one of which is heated as the detection resistance and the other is not heated as the reference resistance. When the medium flows, the heat on the heating resistance is taken away, the resistance value is changed, and the difference between the two resistances is used as the basis for judging the flow rate.

### product application

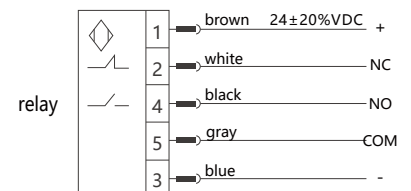
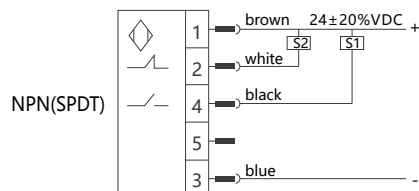
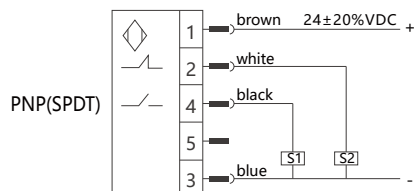
Gas-liquid dual type is used for pneumatic and hydraulic systems, can be used for circulating water, cutting fluid and lubricating oil flow detection, and pump idling protection.

### Technical parameters

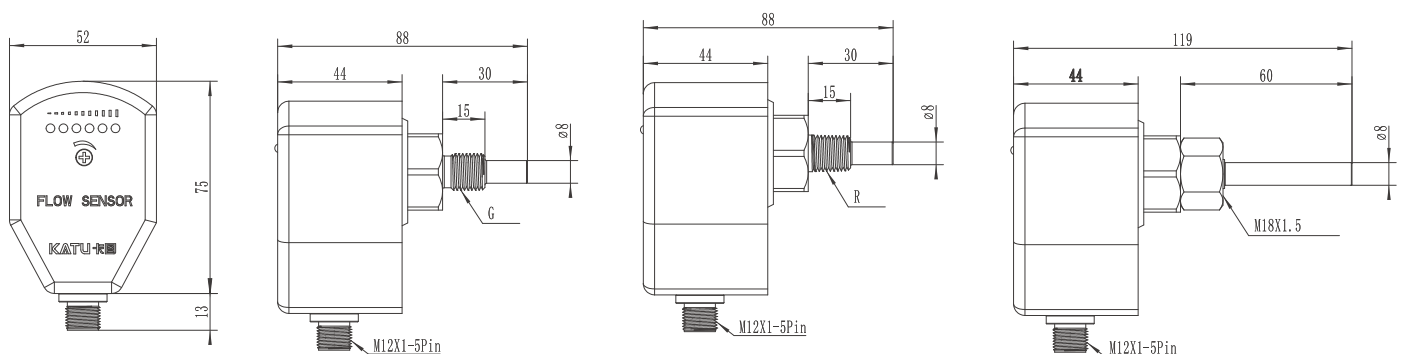
- ◇Set the range: 1...150cm/s(water) , 3...300cm/s(oil) , 20...2000cm/s(air)
- ◇Signal output: PNP/NPN, relay, Normally open + normally closed (SPDT)
- ◇The power supply: 24V±20%VDC or 230V±15%VAC
- ◇Current is switched on: Maximum 400mA(PNP or NPN), maximum 4A (relay)
- ◇No-load current: Maximum 80mA
- ◇Flow indicator: LED row (6)
- ◇Set way: Potentiometer setting
- ◇Pressure range: 100bar
- ◇The temperature gradient: ≤4°C/s
- ◇The response time: 1-13s, Typical values 2s
- ◇Initialization time: 8s

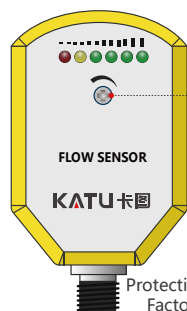
- ◇Electric protection: Invert, short circuit, overload protection
- ◇Protection grade: IP67
- ◇Medium temperature: -20...80°C
- ◇The environment temperature: -20...80°C
- ◇Storage temperature: -20...100°C
- ◇Connection mode: M12 plug-in/direct attachment line
- ◇material:
  - probe: Stainless steel
  - shell: PBT
- ◇weight: 0.4kg

### The wiring diagram

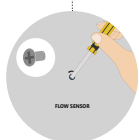


### Size chart (mm)





Protective screw: Removal before adjustment  
Factory standard: 3mm word screwdriver  
(switch sensitivity adjustment)



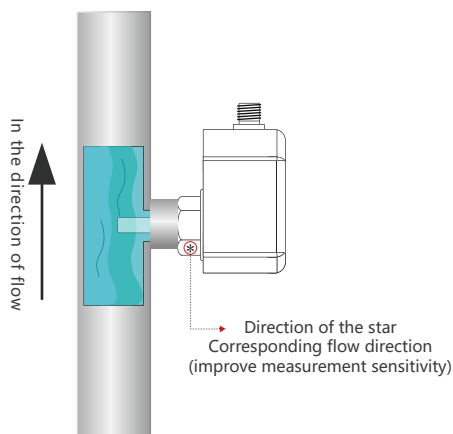
### LED functions and Settings

● ○ ○ ○ ○ ○ The red LED light represents the off - flow or flow rate below the set value switch release

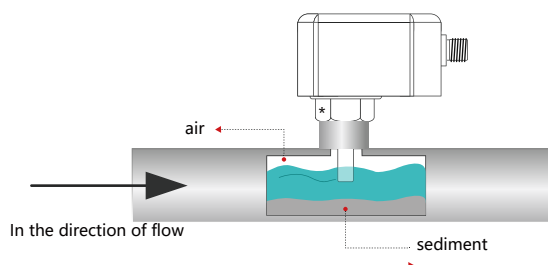
○ ● ○ ○ ○ ○ The yellow LED light indicates that the flow rate is equal to the set value

○ ● ● ● ○ ○ Yellow and green leds indicate that the velocity is greater than the set value, and the more the green light is, the greater the velocity is

### Installation drawing



When mounted vertically, it shall be mounted on a pipe segment flowing from bottom to top. When mounted horizontally, the probe should avoid air and sediment.



### Selection table

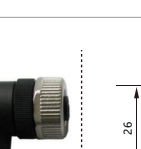
| FS100- | G12M | DC | C | M | -  | detailed                                                                                                                                         |
|--------|------|----|---|---|----|--------------------------------------------------------------------------------------------------------------------------------------------------|
| FS100- |      |    |   |   |    | FS100 series electronic flow switch                                                                                                              |
|        | G12M |    |   |   |    | Joint thread: G1/2 external thread                                                                                                               |
|        | G14M |    |   |   |    | Joint thread: G1/4 external thread                                                                                                               |
|        | R12M |    |   |   |    | Joint thread: R1/2 external thread                                                                                                               |
|        | R14M |    |   |   |    | Joint thread: R1/4 external thread                                                                                                               |
|        | M18K |    |   |   |    | Joint thread: M18×1.5 internal thread<br>It is convenient to use with the installation accessories to rotate the installation direction on site  |
|        |      | DC |   |   |    | DC24V±20% electricity                                                                                                                            |
|        |      | AC |   |   |    | AC230V±15% electricity                                                                                                                           |
|        |      |    | P |   |    | PNP output                                                                                                                                       |
|        |      |    | N |   |    | NPN output                                                                                                                                       |
|        |      |    | C |   |    | Relay output                                                                                                                                     |
|        |      |    |   | M |    | M12*1 connector (standard ZL05-PC02G, see the attachment for details)                                                                            |
|        |      |    |   | Z |    | Direct outgoing (standard with 2 meters of wire)                                                                                                 |
|        |      |    |   |   | -  | Length of probe rod:<br>standard type G thread, with thread 30mm suitable for ≤DN32<br>Standard type R thread, 30mm thread is suitable for ≤DN32 |
|        |      |    |   |   | 50 | Length of probe rod: mm (including 50 thread), suitable for ≥DN40                                                                                |

\* factory standard with electrical accessories M12 connector type ZL05-PC02G

\* select M18\*1.5 internal screw mounting method please note that installation accessories are selected, M18 screw does not support rod length variation

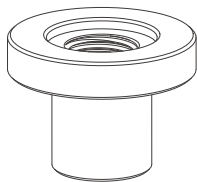
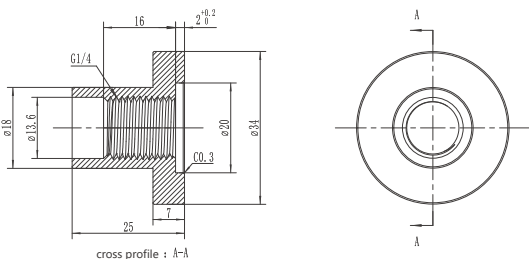
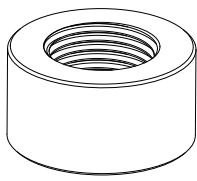
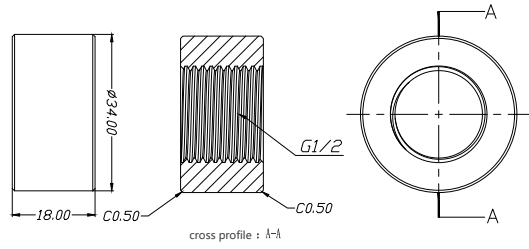
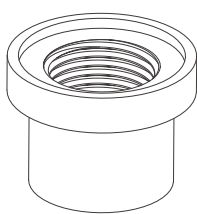
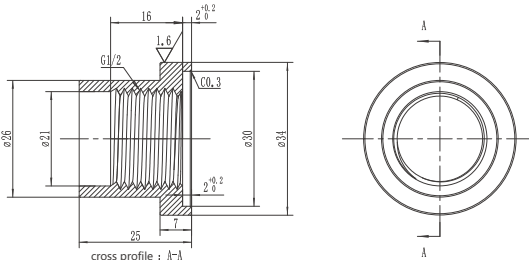
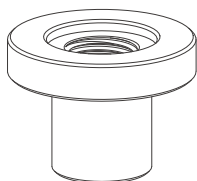
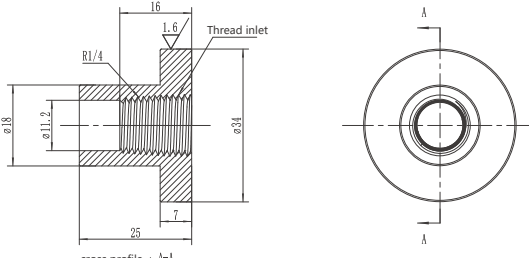
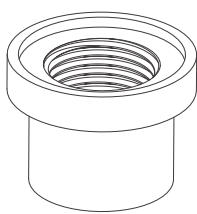
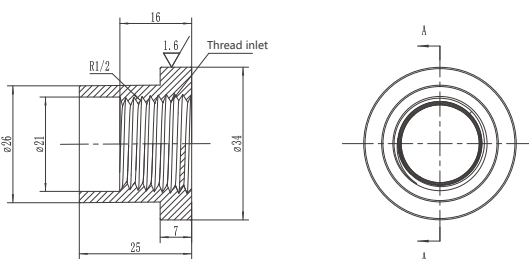
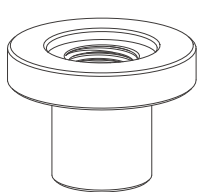
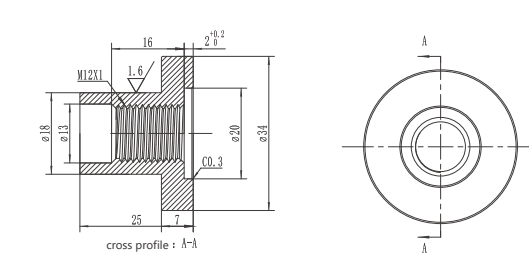
\* for electrical accessories and installation accessories, please refer to the attachment page on page -

| name                      | Outline drawing/dimension drawing (mm)                                            | material | model             |
|---------------------------|-----------------------------------------------------------------------------------|----------|-------------------|
| M12*1-5Pin<br>(2m cable)  |  | PUR      | ZL05-PU02G        |
| M12*1-5Pin<br>(5m cable)  |                                                                                   |          | ZL05-PU05G        |
| M12*1-5Pin<br>(10m cable) |                                                                                   |          | ZL05-PU010G       |
| M12*1-5Pin<br>(2m cable)  |  | PVC      | <b>ZL05-PC02G</b> |
| M12*1-5Pin<br>(5m cable)  |                                                                                   |          | ZL05-PC05G        |
| M12*1-5Pin<br>(10m cable) |                                                                                   |          | ZL05-PC010G       |
| M12*1-5Pin<br>(2m cable)  |  | PUR      | ZL05-PU02W        |
| M12*1-5Pin<br>(5m cable)  |                                                                                   |          | ZL05-PU05W        |
| M12*1-5Pin<br>(10m cable) |                                                                                   |          | ZL05-PU010W       |
| M12*1-5Pin<br>(2m cable)  |  | PVC      | ZL05-PC02W        |
| M12*1-5Pin<br>(5m cable)  |                                                                                   |          | ZL05-PC05W        |
| M12*1-5Pin<br>(10m cable) |                                                                                   |          | ZL05-PC010W       |

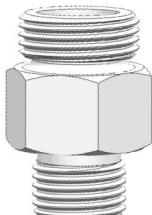
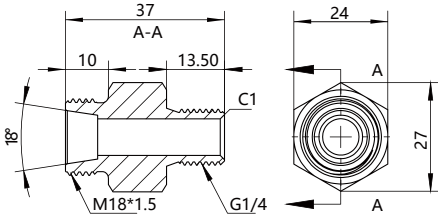
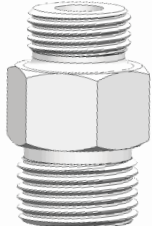
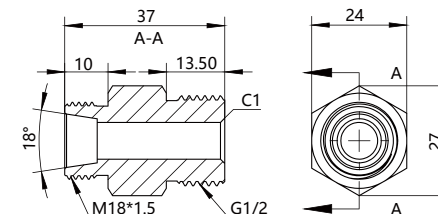
| M12* 1-5Pin self-connector/size drawing (mm)                                        | model                         |
|-------------------------------------------------------------------------------------|-------------------------------|
|  | <p>GL05<br/>(5 Pin joint)</p> |
|  | <p>WL05<br/>(5 Pin joint)</p> |

| name                   | External drawing                                                                   | Size drawing (unit :mm)                                                             | model                                        |
|------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------|
| M18*1.5<br>Welded base |  |  | FA002-M18<br>(Material: 304 stainless steel) |

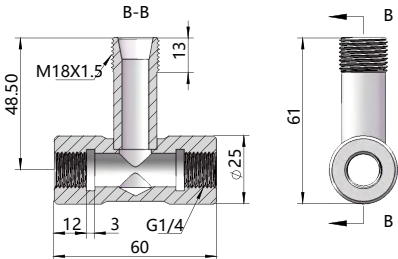
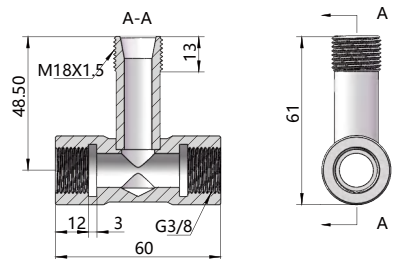
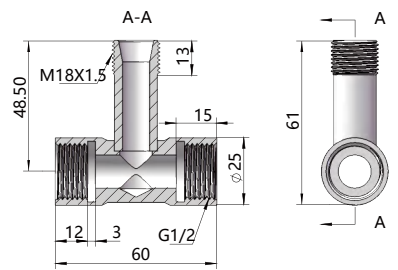
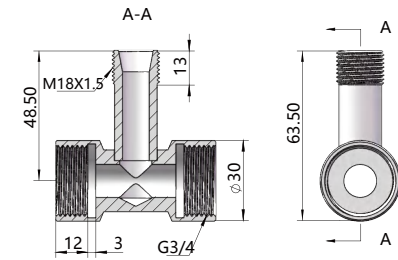
## Welded base (optional external thread only)

| name                              | External drawing                                                                    | Size drawing (unit :mm)                                                              | model                                         |
|-----------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------|
| G1/4 Welded base                  |    |    | FA002-G14<br>(Material: 304 stainless steel)  |
| G1/2<br>High pressure welded base |    |    | FA002-G12H<br>(Material: 304 stainless steel) |
| G1/2 Welded base                  |   |   | FA002-G12<br>(Material: 304 stainless steel)  |
| Rc1/4 Welded base                 |  |  | FA002-R14<br>(Material: 304 stainless steel)  |
| Rc1/2 Welded base                 |  |  | FA002-R12<br>(Material: 304 stainless steel)  |
| M12*1 Welded base                 |  |  | FA002-M12<br>(Material: 304 stainless steel)  |

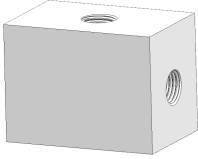
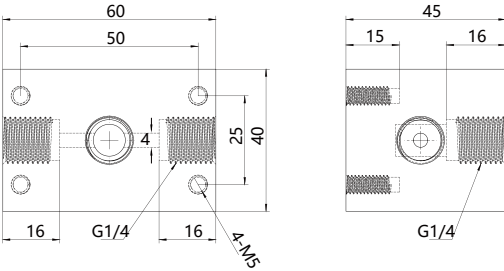
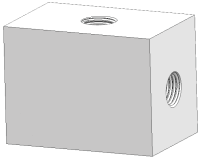
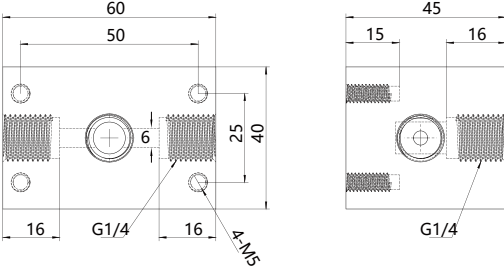
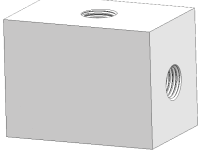
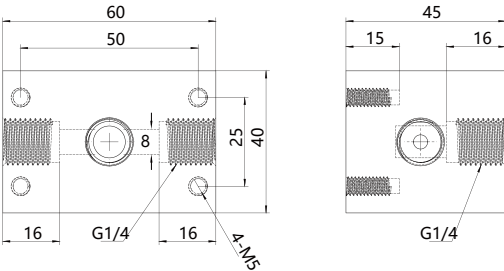
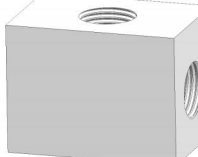
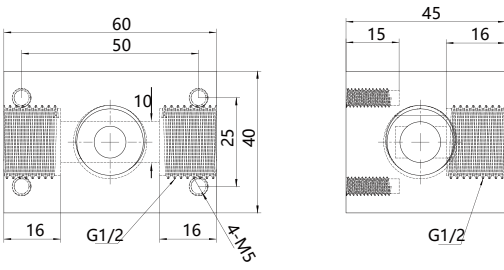
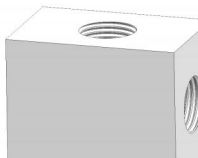
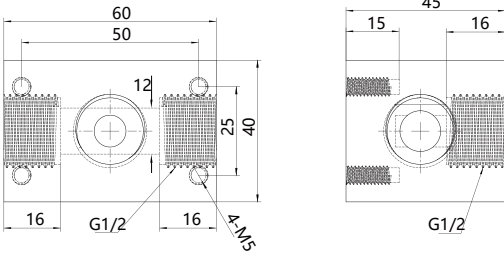
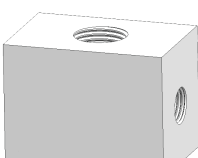
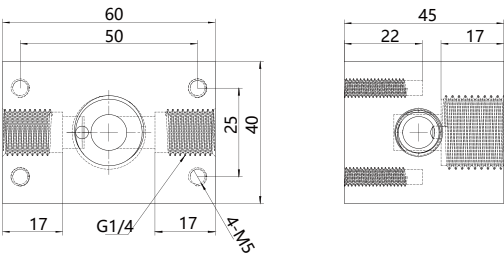
## Adapter (M18 internal thread only optional)

| name                                                                            | External drawing                                                                  | Size chart (mm)                                                                    | model                                            |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------|
| M18 * 1.5 internal thread<br>To g1/4 male thread,<br>Probe insertion depth 15mm |  |  | FA004-M18G14S<br>(Material: 304 stainless steel) |
|                                                                                 |                                                                                   |                                                                                    | FA004-M18G14T<br>(Material: brass)               |
| M18 * 1.5 internal thread<br>To g1/2 male thread                                |  |  | FA004-M18G12S<br>(Material: 304 stainless steel) |
|                                                                                 |                                                                                   |                                                                                    | FA004-M18G12T<br>(Material: brass)               |

## Tee (stainless steel) (M18 internal thread only optional)

| name                                                | External drawing                                                                    | Size chart (mm)                                                                      | model                                           |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------|
| M18 * 1.5 internal thread<br>Equipped with G1/4 tee |   |   | FA003-M18G14<br>(Material: 304 stainless steel) |
| M18 * 1.5 internal thread<br>With G3/8 tee          |  |  | FA003-M18G38<br>(Material: 304 stainless steel) |
| M18 * 1.5 internal thread<br>Equipped with G1/2 tee |  |  | FA003-M18G12<br>(Material: 304 stainless steel) |
| M18 * 1.5 internal thread<br>With G3/4 tee          |  |  | FA003-M18G34<br>(Material: 304 stainless steel) |

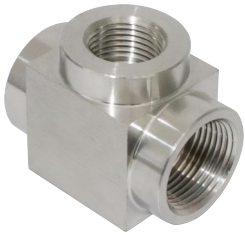
## Tee (PP) (external thread only optional)

| name                        | External drawing                                                                    | Size chart (mm)                                                                      | model                         |
|-----------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------|
| Type G1/4 small flow tee    |    |    | FA010-04G14<br>(material: PP) |
| Type G1/4 straight hole tee |    |    | FA010-06G14<br>(material: PP) |
| Type G1/4 small flow tee    |   |   | FA010-08G14<br>(material: PP) |
| Type G1/2 straight hole tee |  |  | FA010-10G12<br>(material: PP) |
| Type G1/2 straight hole tee |  |  | FA010-12G12<br>(material: PP) |
| G1/4 gas only Tee adapter   |  |  | FA012-01<br>(material: PP)    |

## Tee (conventional stainless steel :40bar) (external thread only optional)

| External drawing                                                                  | Size table         |                       |                      |                        |                       |                 |
|-----------------------------------------------------------------------------------|--------------------|-----------------------|----------------------|------------------------|-----------------------|-----------------|
|  | Conventional tee   |                       |                      |                        |                       |                 |
|                                                                                   | Diameter of thread | Inch code             | Pipe thread (R)      | Model number           |                       |                 |
|                                                                                   | DN15               | 4 points              | 1/2                  | FA013-R12K             |                       |                 |
|                                                                                   | Reducing tee       |                       |                      |                        |                       |                 |
|                                                                                   | Diameter of thread | Inch code             | Pipe thread left (R) | Pipe thread center (R) | Pipe thread right (R) | Model number    |
|                                                                                   | DN20               | 6 points×4 points     | 3/4 "                | 1/2"                   | 3/4 "                 | FA013-R12KR34K  |
|                                                                                   | DN25               | 1 inch x 4 points     | 1"                   | 1/2"                   | 1"                    | FA013-R12KR1K   |
|                                                                                   | DN32               | 1.2 inches x 4 points | 1.2 "                | 1/2"                   | 1.2 "                 | FA013-R12KR1.2K |

## Tee (high pressure stainless steel :200bar) (external thread only optional)

| External drawing                                                                   | Size table         |                     |                  |                    |                   |                |
|------------------------------------------------------------------------------------|--------------------|---------------------|------------------|--------------------|-------------------|----------------|
|  | Conventional tee   |                     |                  |                    |                   |                |
|                                                                                    | Diameter of thread | Inch code           | Pipe thread (G)  | Model number       |                   |                |
|                                                                                    | DN15               | Four points         | 1/2              | FA014-G12K         |                   |                |
|                                                                                    | Reducing tee       |                     |                  |                    |                   |                |
|                                                                                    | Diameter of thread | Inch code           | Pipe thread left | Pipe thread center | Pipe thread right | Model number   |
|                                                                                    | DN20               | 6 points x 4 points | G 3/4 "          | G 1/2"             | G 3/4 "           | FA014-G12KG34K |
|                                                                                    | DN25               | 1 inch x 4 points   | G 1"             | G 1/2"             | G 1"              | FA014-G12KG1K  |