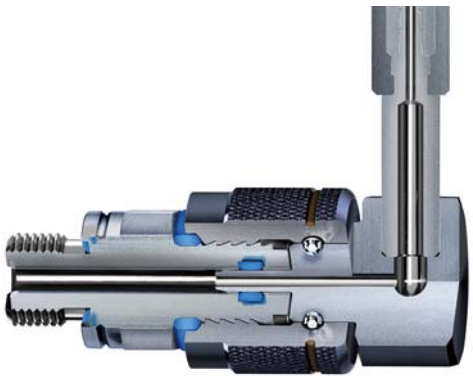
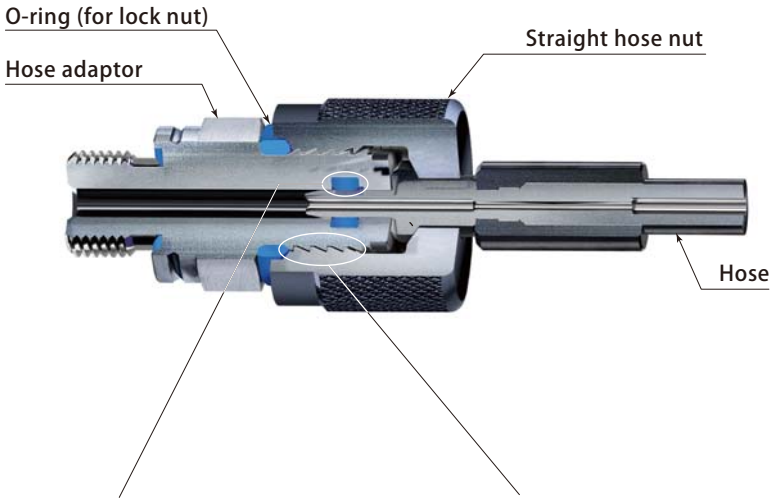
micro hose system



Fluid used	N_2 (Nitrogen) gas
Proof pressure	42MPa(50℃)
Operating temperature	0 ～ 70℃
Inside diameter of hose	ø2mm
Outside diameter of hose	ø5mm
Minimum bending radius	R20mm
Material	Hose core, outer coating ：Polyamide resin
	Reinforcing layer ：Aramid fiber
Proof pressure varies according to the temperature of hose	0℃：51 MPa
	30℃：46 MPa
	50℃：42 MPa
	70℃：38 MPa

- No sealing tape or agent is necessary for a hose adaptor (Gas pressure is sealed by a packing or O-ring).
- For the mount of hose adaptor, be sure to use the tool when tightening.
- Hose should be tightened securely till hose nut surely compresses the lock nut O-ring.

Straight hose nut

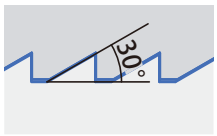


O-ring

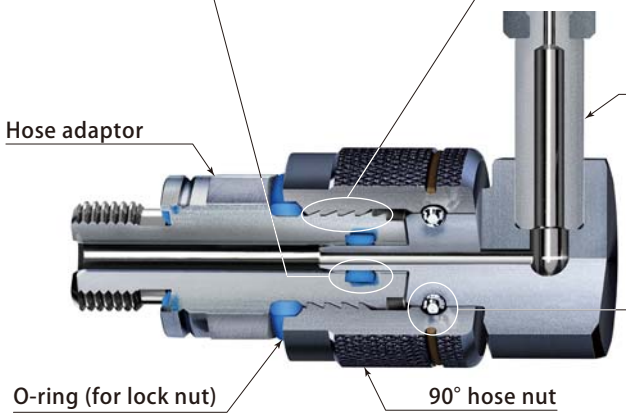
Built-in O-ring can positively seal the fluid and sealing ability can stably maintained regardless of the quality of operater or circumstances. Also sealing performance will not change even after repetitive connection / disconnection work.

Buttress thread

The buttress thread with an unique inclination has a strong resistance against the strong vibration and the nut will not easily loosen even by the vibration of press machine.



90°hose nut

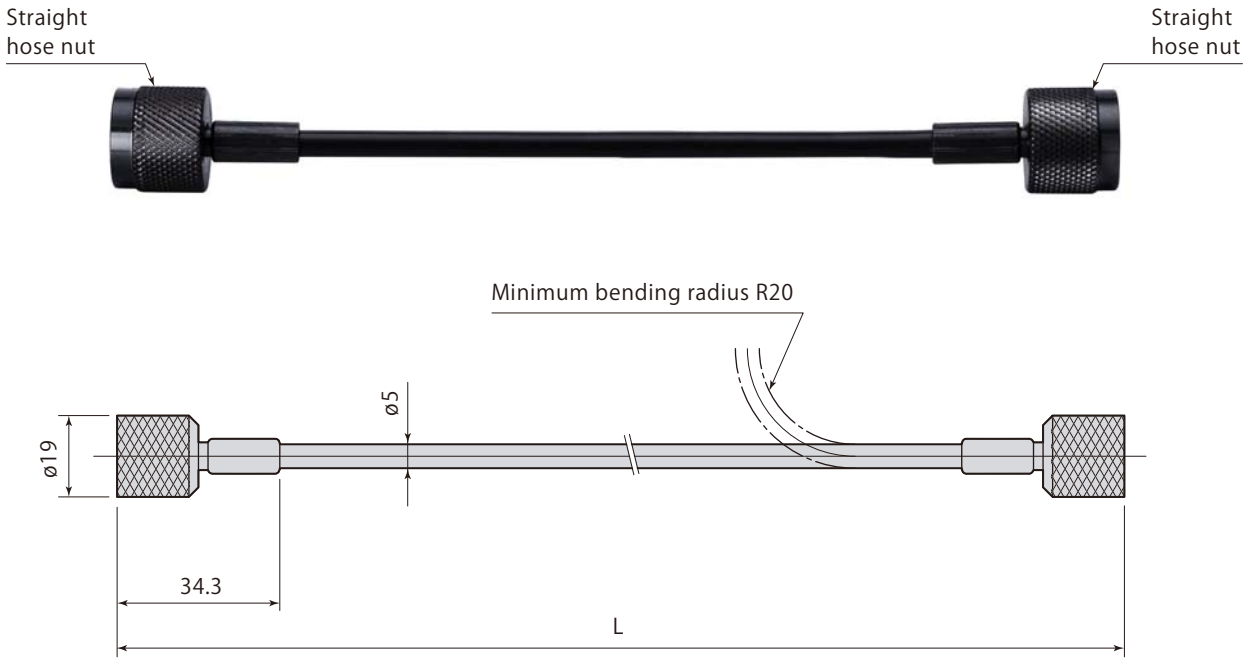


Steel ball

Steel balls in the nut can reduce the friction and enable the nut tighten / loosen smoothly.

Straight & Straight hose

DNH - SS



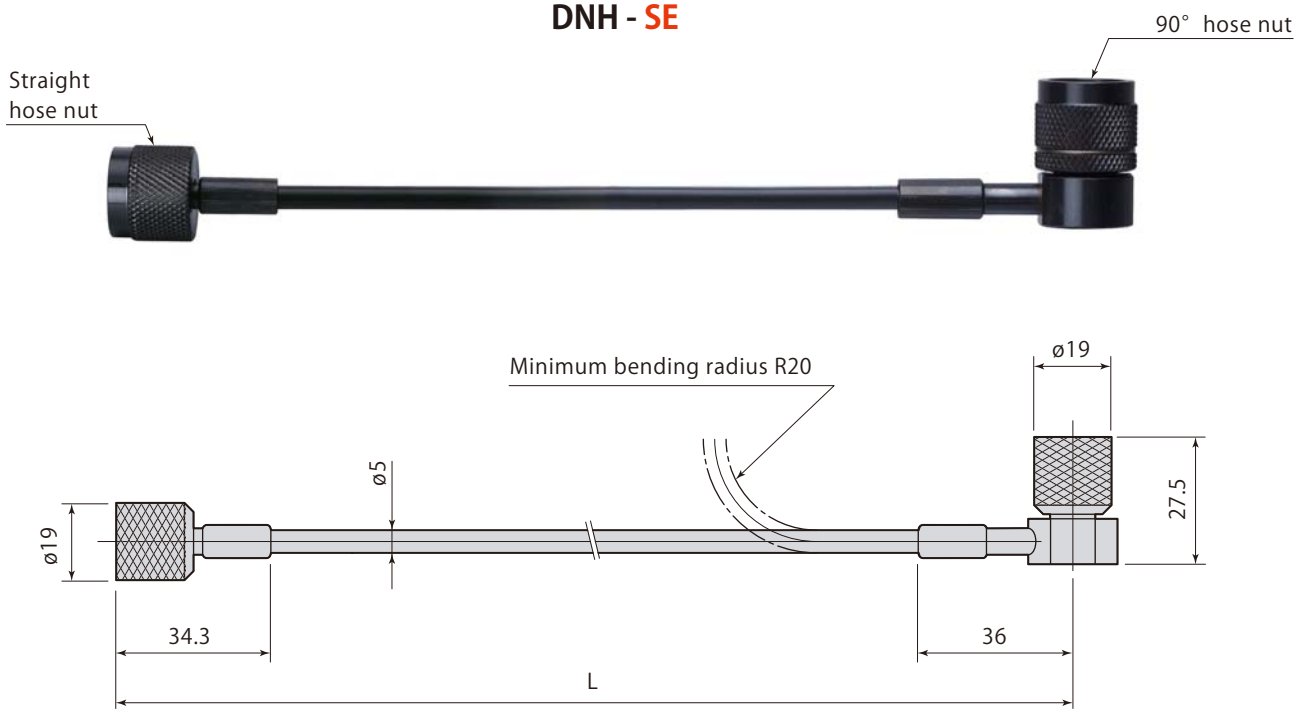
Model	L mm	Mass g
DNH-SS-0150	150	70
DNH-SS-0160	160	
DNH-SS-0170	170	
DNH-SS-0180	180	
DNH-SS-0190	190	
DNH-SS-0200	200	
DNH-SS-0210	210	
DNH-SS-0220	220	
DNH-SS-0230	230	
DNH-SS-0240	240	
DNH-SS-0250	250	
DNH-SS-0260	260	
DNH-SS-0270	270	
DNH-SS-0280	280	
DNH-SS-0290	290	
DNH-SS-0300	300	

Model	L mm	Mass g
DNH-SS-0350	350	70
DNH-SS-0400	400	
DNH-SS-0450	450	
DNH-SS-0500	500	
DNH-SS-0550	550	
DNH-SS-0600	600	
DNH-SS-0650	650	
DNH-SS-0700	700	
DNH-SS-0800	800	80
DNH-SS-0900	900	
DNH-SS-1000	1000	
DNH-SS-1100	1100	
DNH-SS-1300	1300	
DNH-SS-1500	1500	90
DNH-SS-2000	2000	100

Minimum hose length is L=150mm.
Other length is also available (made-to-order).Specify the required length per 10 mm.

Straight & 90° hose

DNH - SE



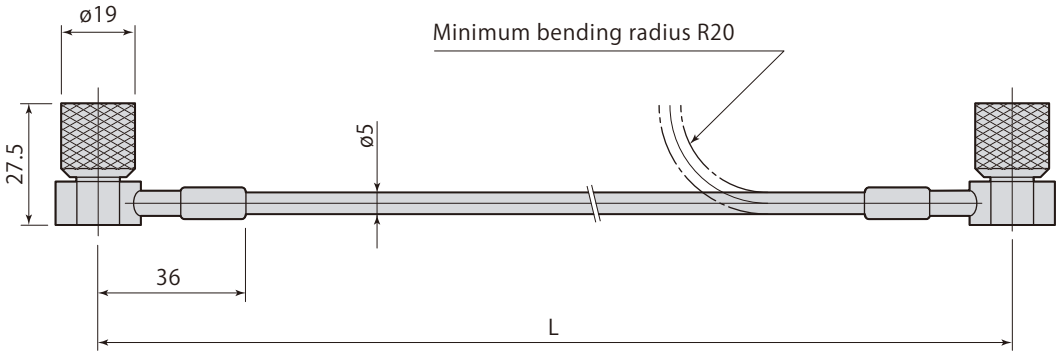
Model	L mm	Mass g
DNH-SE-0150	150	90
DNH-SE-0160	160	
DNH-SE-0170	170	
DNH-SE-0180	180	
DNH-SE-0190	190	
DNH-SE-0200	200	
DNH-SE-0210	210	
DNH-SE-0220	220	
DNH-SE-0230	230	
DNH-SE-0240	240	
DNH-SE-0250	250	
DNH-SE-0260	260	
DNH-SE-0270	270	
DNH-SE-0280	280	
DNH-SE-0290	290	
DNH-SE-0300	300	

Model	L mm	Mass g
DNH-SE-0350	350	90
DNH-SE-0400	400	
DNH-SE-0450	450	
DNH-SE-0500	500	
DNH-SE-0550	550	
DNH-SE-0600	600	
DNH-SE-0650	650	
DNH-SE-0700	700	
DNH-SE-0800	800	100
DNH-SE-0900	900	
DNH-SE-1000	1000	
DNH-SE-1100	1100	
DNH-SE-1300	1300	
DNH-SE-1500	1500	110
DNH-SE-2000	2000	120

Minimum hose length is L=150mm.
Other length is also available (made-to-order).Specify the required length per 10 mm.

90° & 90° hose

DNH - EE



Model	L mm	Mass g
DNH-EE-0150	150	110
DNH-EE-0160	160	
DNH-EE-0170	170	
DNH-EE-0180	180	
DNH-EE-0190	190	
DNH-EE-0200	200	
DNH-EE-0210	210	
DNH-EE-0220	220	
DNH-EE-0230	230	
DNH-EE-0240	240	
DNH-EE-0250	250	
DNH-EE-0260	260	
DNH-EE-0270	270	
DNH-EE-0280	280	
DNH-EE-0290	290	
DNH-EE-0300	300	

Minimum hose length is L=150mm.
Other length is also available (made-to-order).Specify the required length per 10 mm.

Straight adaptor

DNH - GA

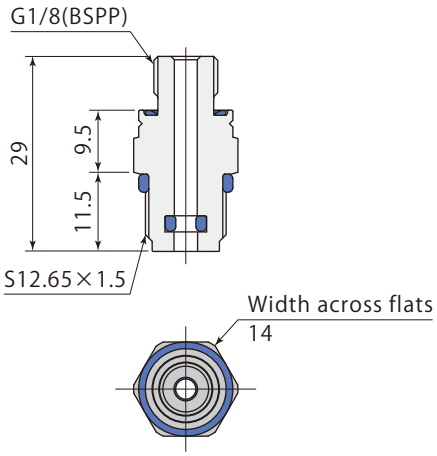
Straight adaptor
Long model

DNH - SJAG

Piping port size	G1/8 (BSPP)

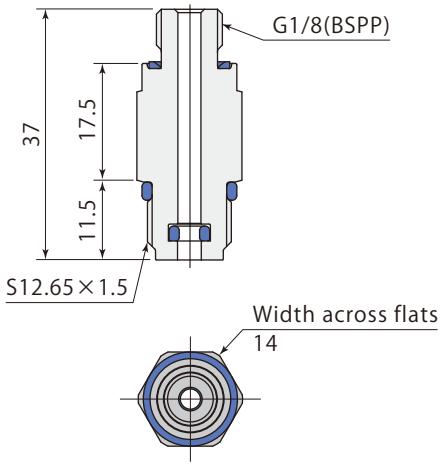
● Check valve not built-in.

Straight adaptor DNH-GA

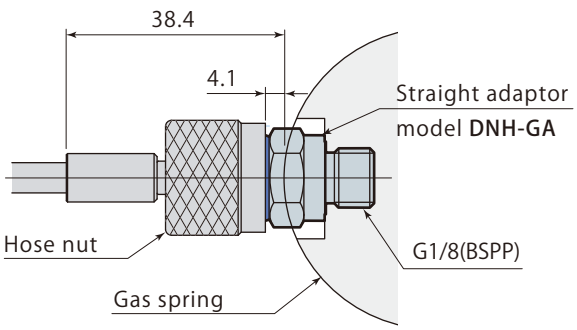


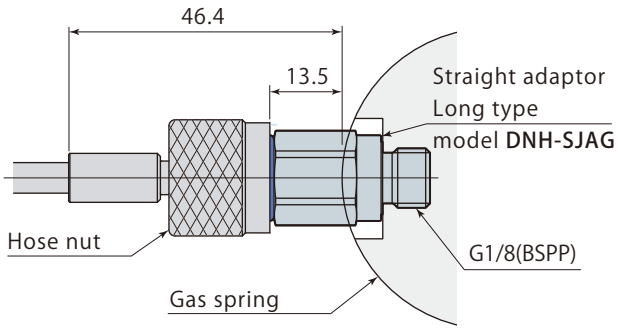
Tool used	Spanner 14mm
Tightening torque	12 N·m
Mass	30 g

Straight adaptor Long model DNH-SJAG



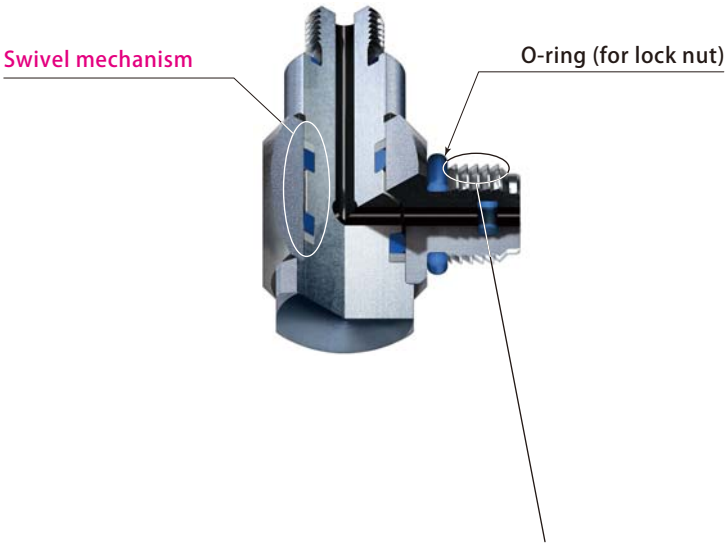
Tool used	Spanner 14mm
Tightening torque	12 N·m
Mass	30 g





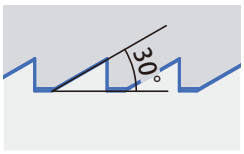
Finger adjustable hose adaptor without applying any excessive force to the hose.

Swivel elbow adaptor

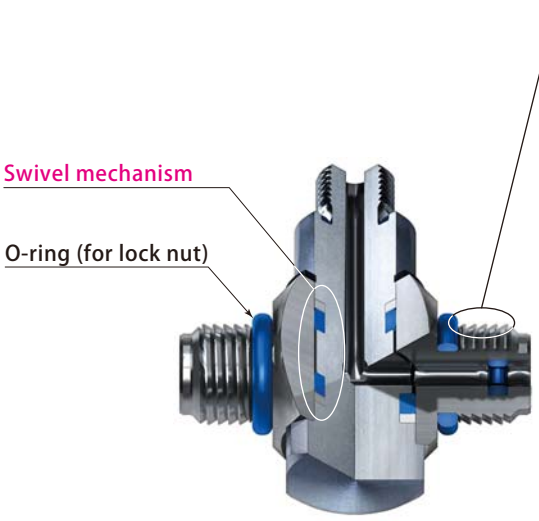


Buttress thread

The buttress thread with an unique inclination has a strong resistance against the strong vibration and the nut will not easily loosen even by the vibration of press machine.



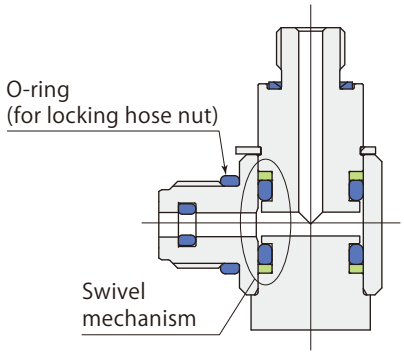
Swivel tee adaptor

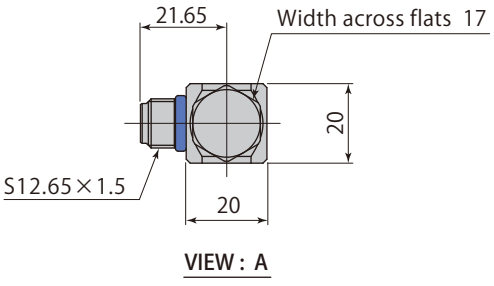


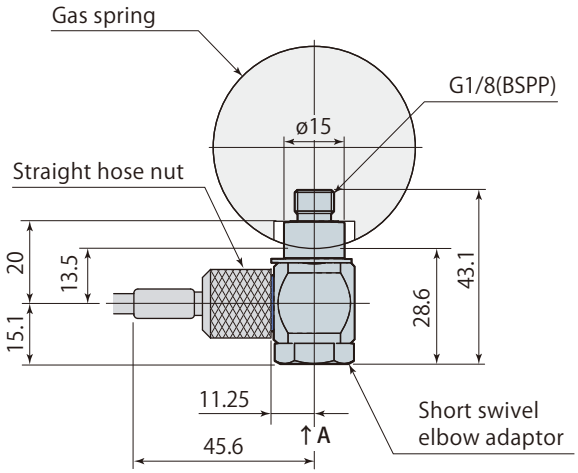
- No sealing tape or agent is necessary for a hose adaptor (Gas pressure is sealed by a packing or O-ring).
- For the mount of hose adaptor, be sure to use the tool when tightening.
- Hose should be tightened securely till hose nut surely compresses the lock nut O-ring.

Short swivel elbow adaptor

DNH - GH

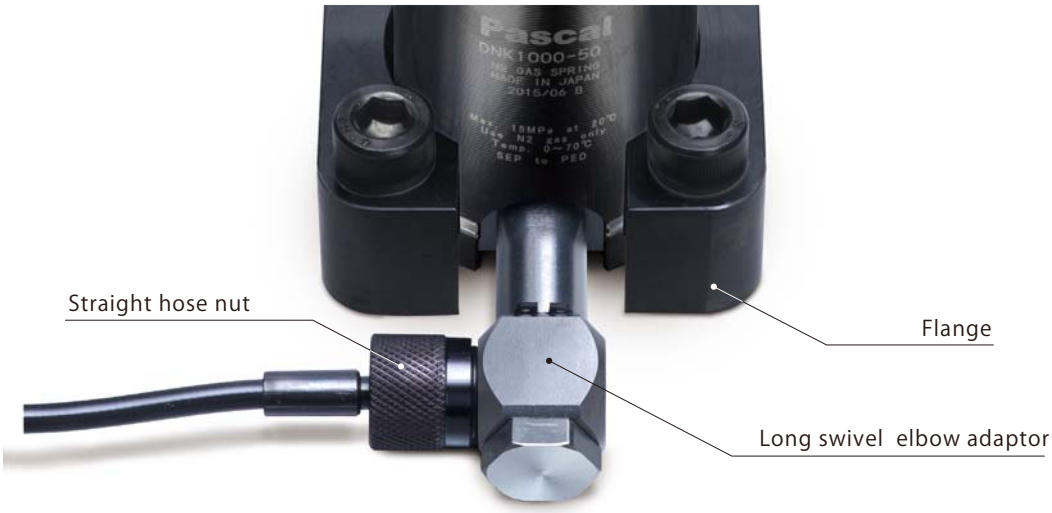






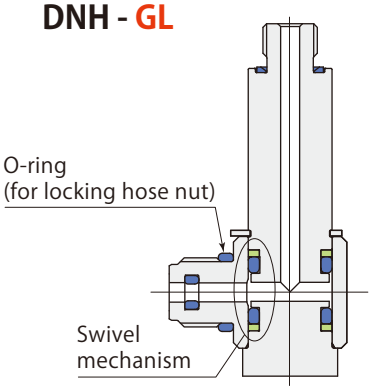
- No check valve inside.
- Choose model DNH-GL when the gas spring is installed with a flange.

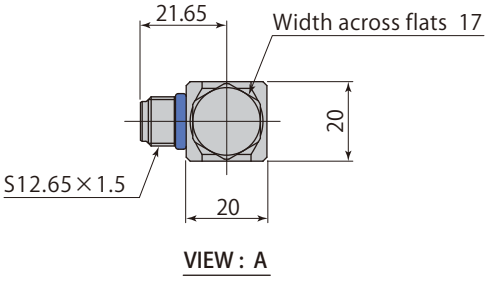
Piping port size	G1/8 (BSPP)
Tool used	Spanner 17mm
Tightening torque	12 N·m
Mass	90 g

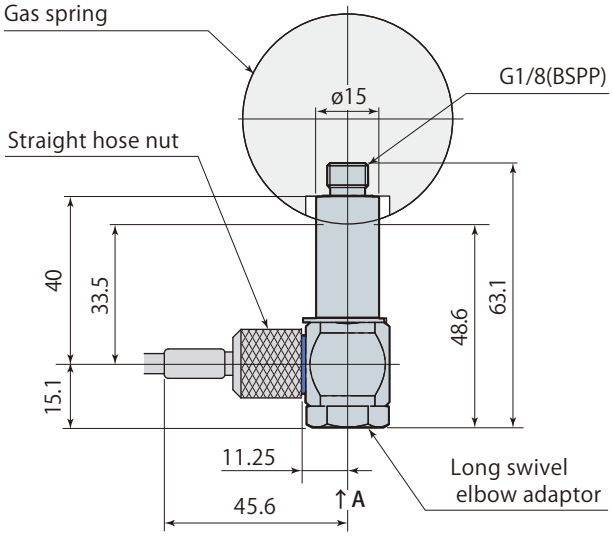


Long swivel elbow adaptor

DNH - GL





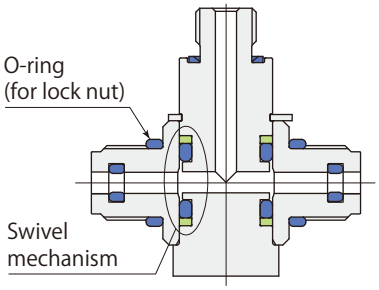


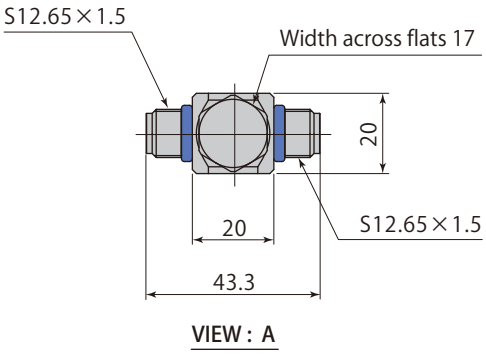
● No check valve inside.

Piping port size	G1/8 (BSPP)
Tool used	Spanner 17mm
Tightening torque	12 N·m
Mass	120 g

Short swivel tee adaptor

DNH - GC





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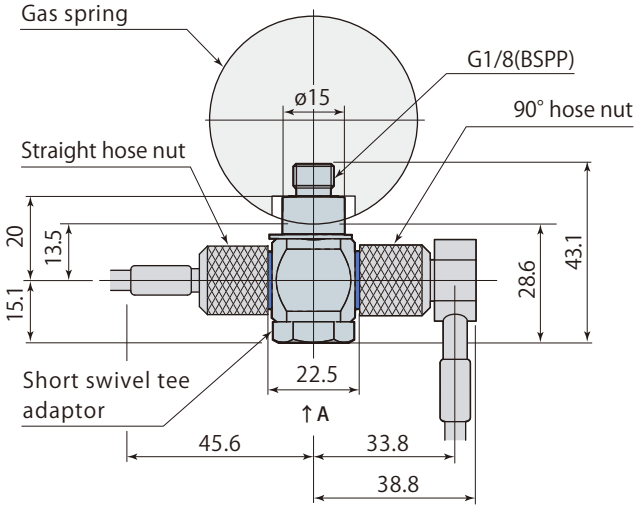
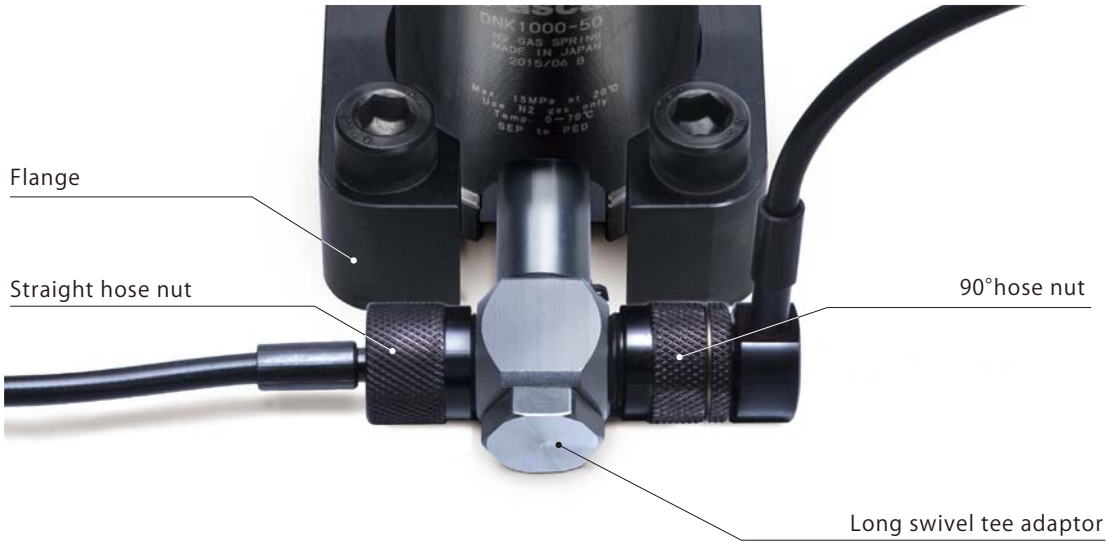


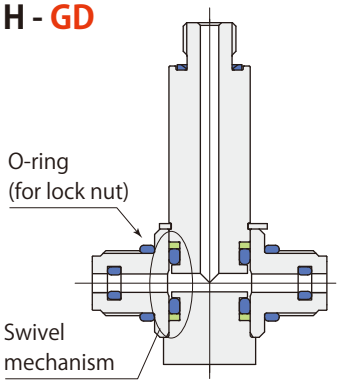
- No check valve inside.
- Choose model DNH-GD when the gas spring is installed with a flange.

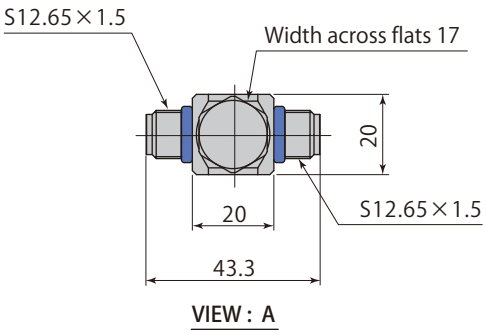
Piping port size	G1/8 (BSPP)
Tool used	Spanner 17mm
Tightening torque	12 N·m
Mass	100 g

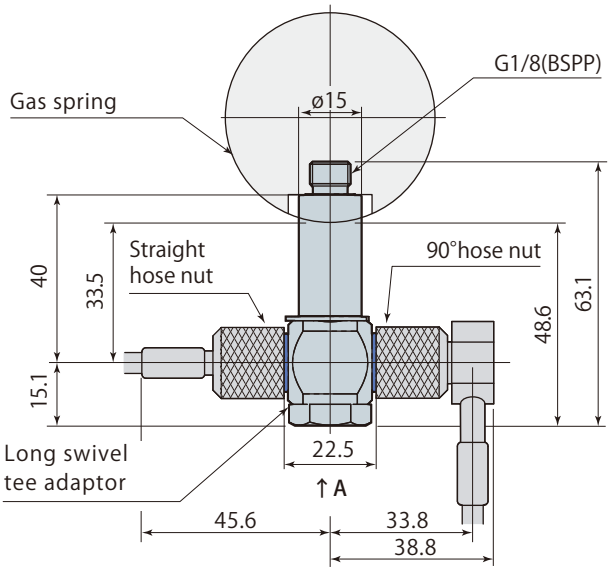


Long swivel tee adaptor

DNH - GD

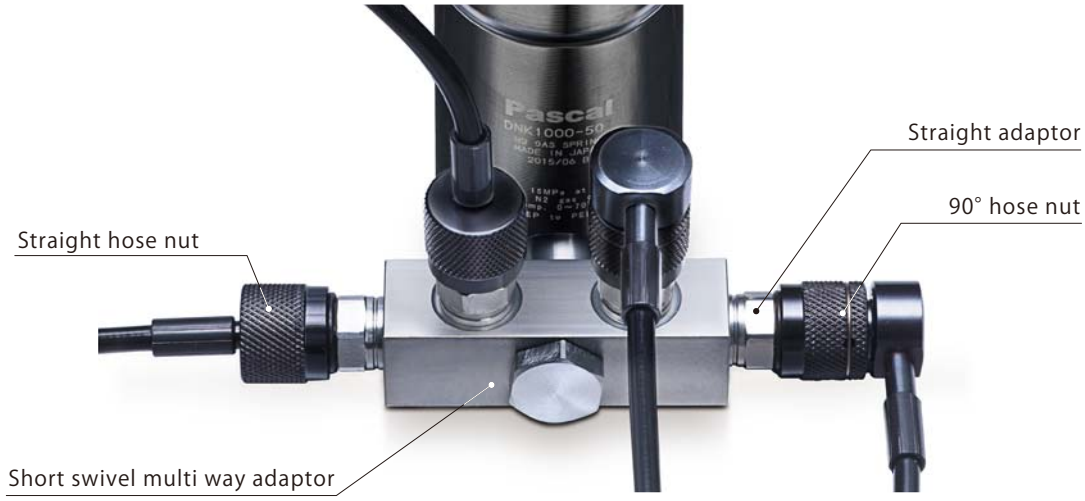






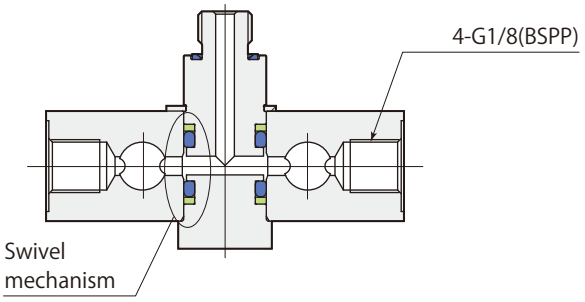
● No check valve inside.

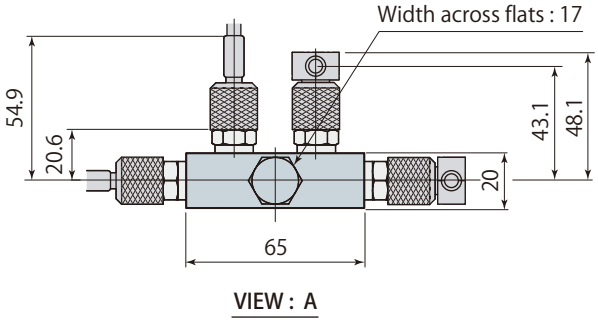
Piping port size	G1/8 (BSPP)
Tool used	Spanner 17mm
Tightening torque	12 N·m
Mass	130 g

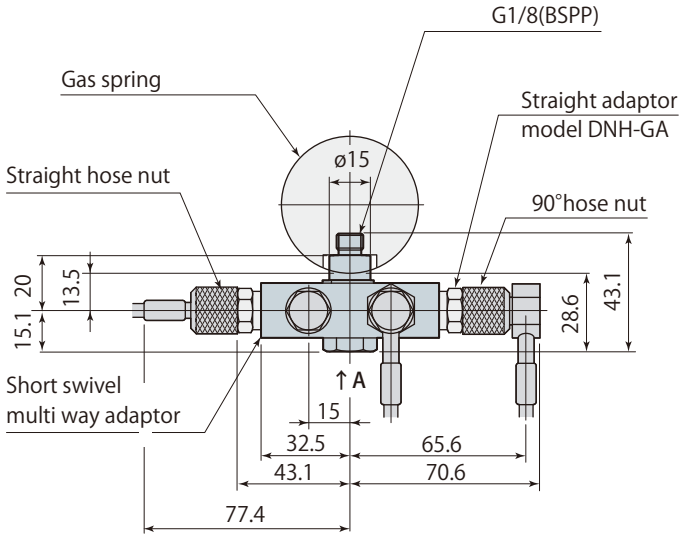


Short swivel multi way adaptor

DNH - GF

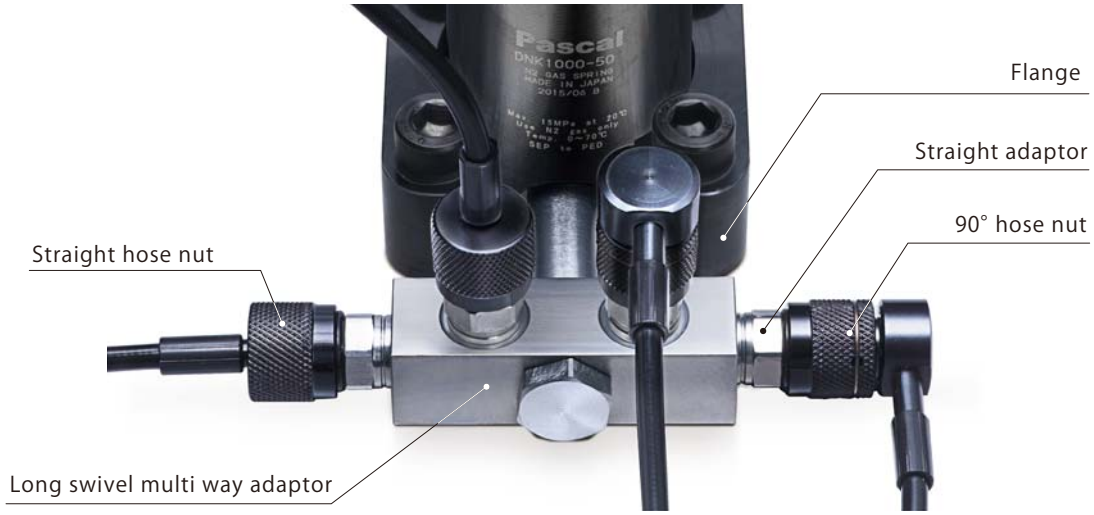






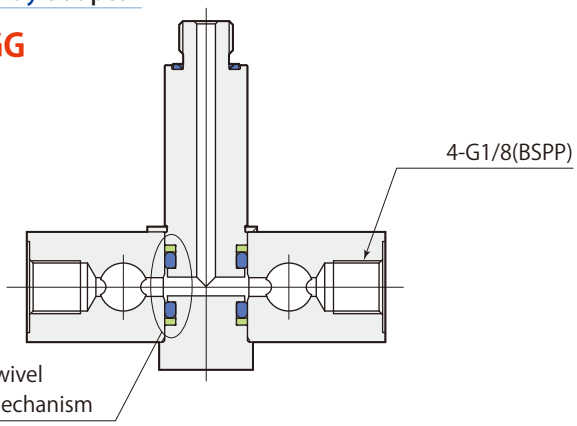
- Mount G-thread straight adaptor. (Refer to **page → 52**)
  Plug the open ports as necessity. (Refer to **page → 68**)
- Choose model DNH-GG when the gas spring is installed with a flange.

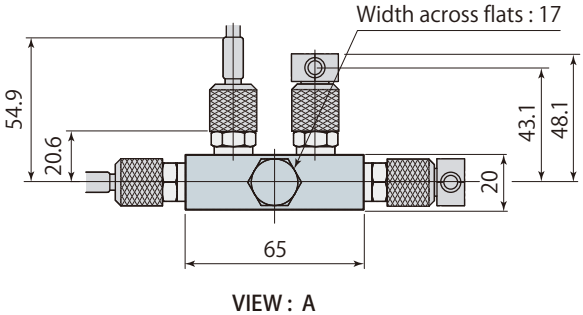
Piping port size	G1/8 (BSPP)
Tool used	Spanner 17mm
Tightening torque	12 N·m
Mass	200 g



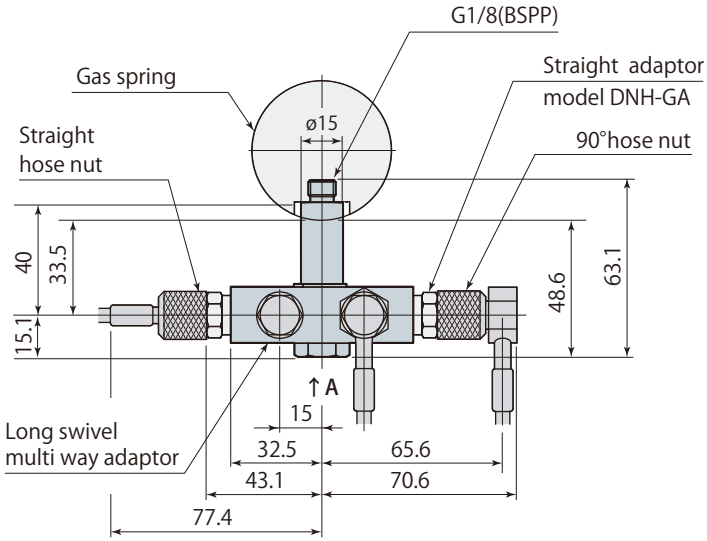
Long swivel multi way adaptor

DNH - GG



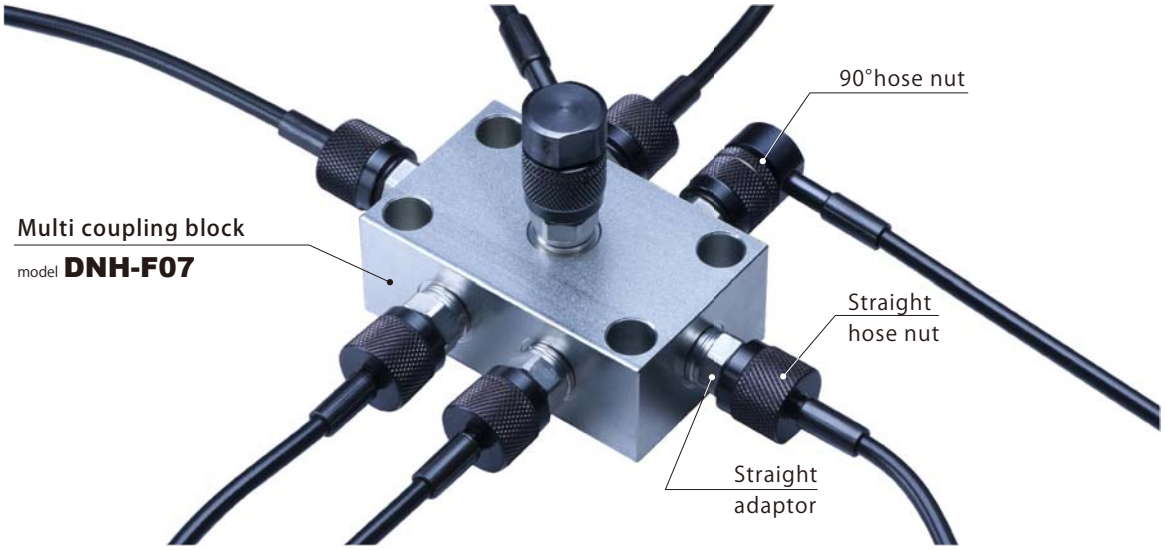


VIEW : A



● Mount G-thread straight adaptor. (Refer to **page → 52**)
Plug the open ports as necessity. (Refer to **page → 68**)

Piping port size	G1/8 (BSPP)
Tool used	Spanner 17mm
Tightening torque	12 N·m
Mass	220 g

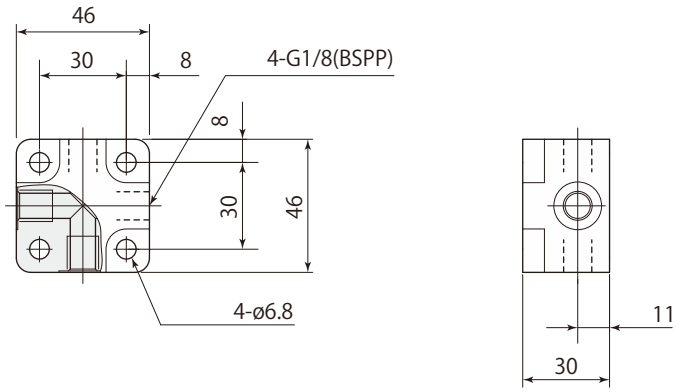


Piping port size	G1/8 (BSPP)

DNH - F04

Number of port : 4

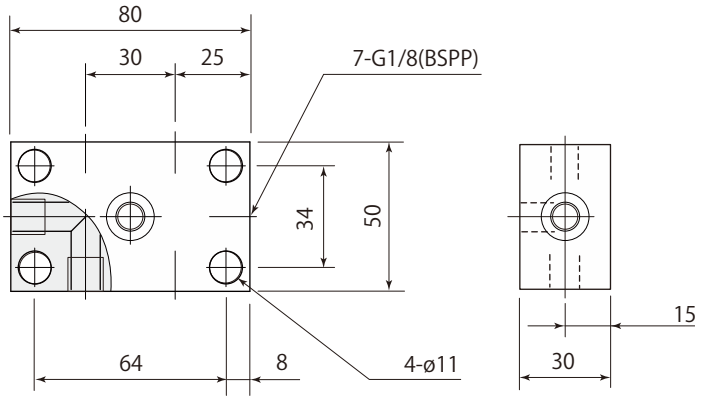
Mass : 400g



DNH - F07

Number of port : 7

Mass : 750g

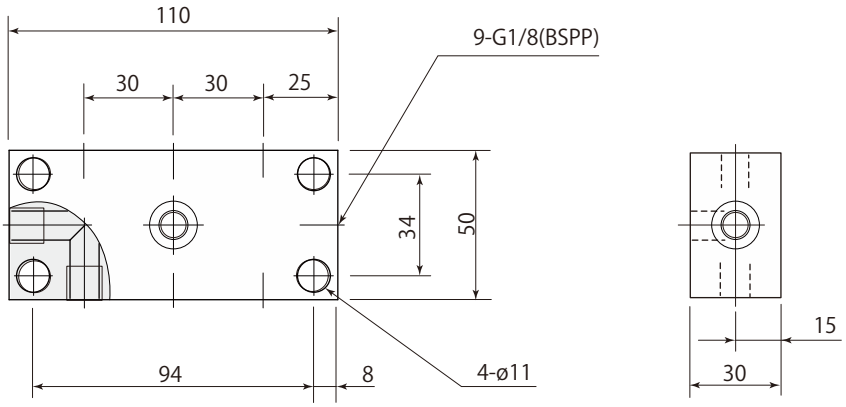


- Mount G-thread type adaptor (Refer to **page → 52 ~ 60**). Plug the open ports as necessity.(Refer to **page → 68**)
- Mounting holes (4 places) are provided on the block however 2- place mount is feasible.

DNH - F09

Number of port : 9

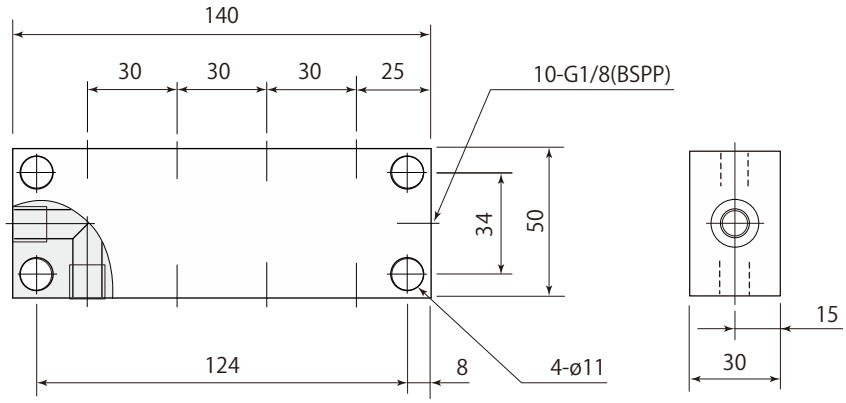
Mass : 1100g



DNH - F10

Number of port : 10

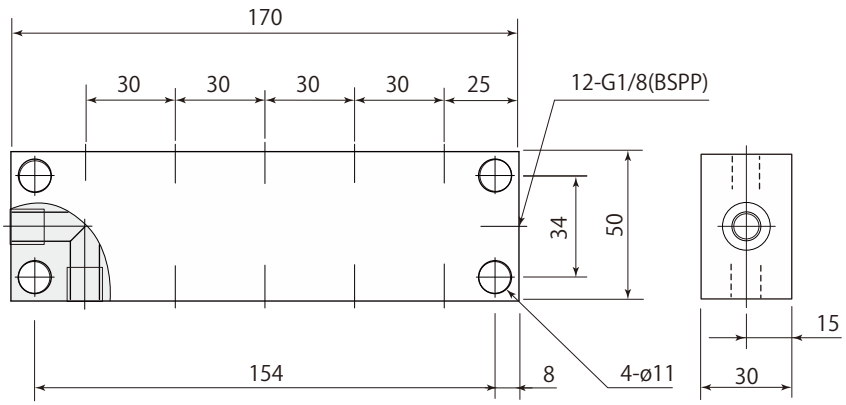
Mass : 1400g



DNH - F12

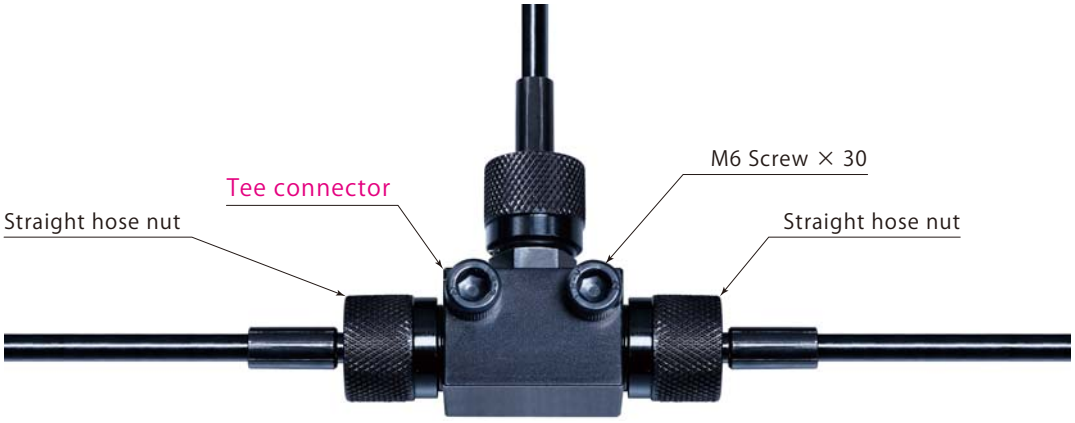
Number of port : 12

Mass : 1700g

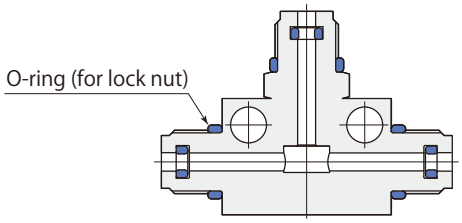


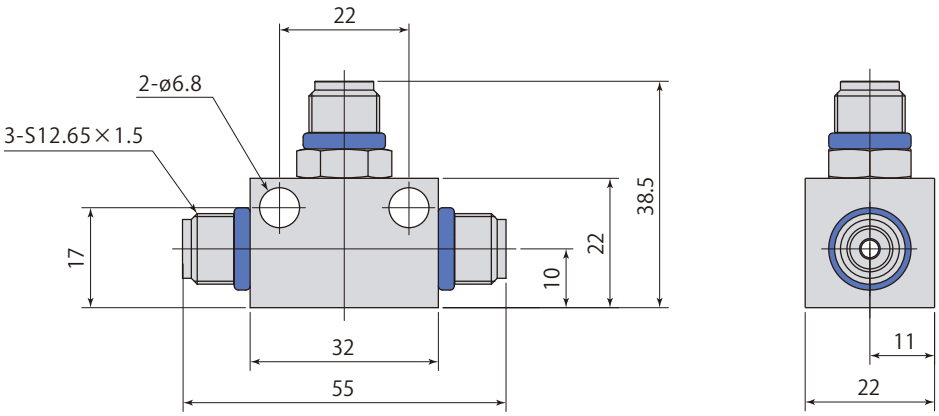
Tee connector

DNH - TC2



It takes up minimum space rather than using a coupling block and needs less parts.





Mass	130 g

- Use M6 screws to bolt when piping.
- Check valve not built-in.

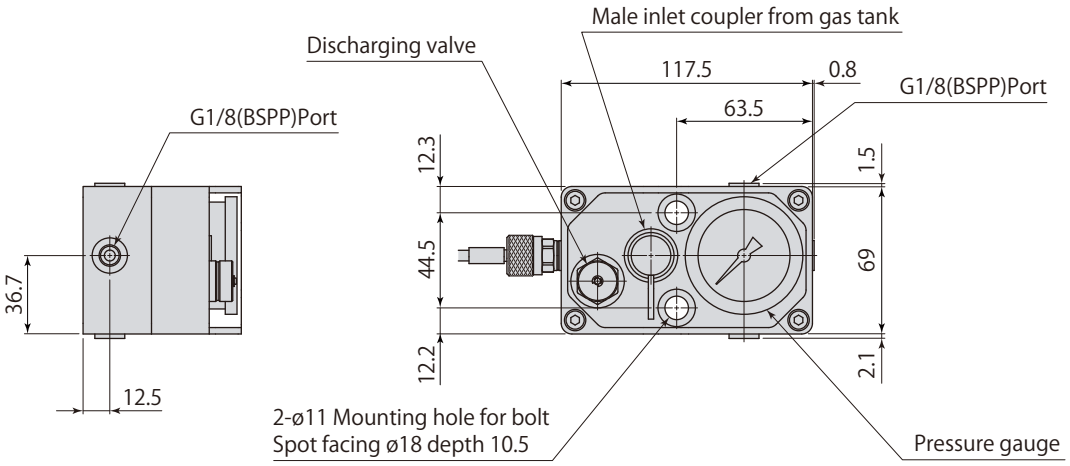
Control panel

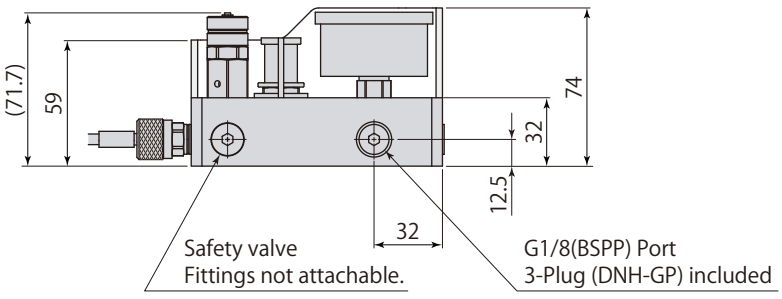
DNH - CPA

Control panel

DNH - CPA-L

New Vertical specification





- Mount G-thread type adaptor (Refer to **page → 52～60)**. Plug the open ports as necessity. (Refer to **page → 68**)

Maximum charging pressure	18 MPa
Operating temperature	0 ～ 70℃
Mass	1550 g

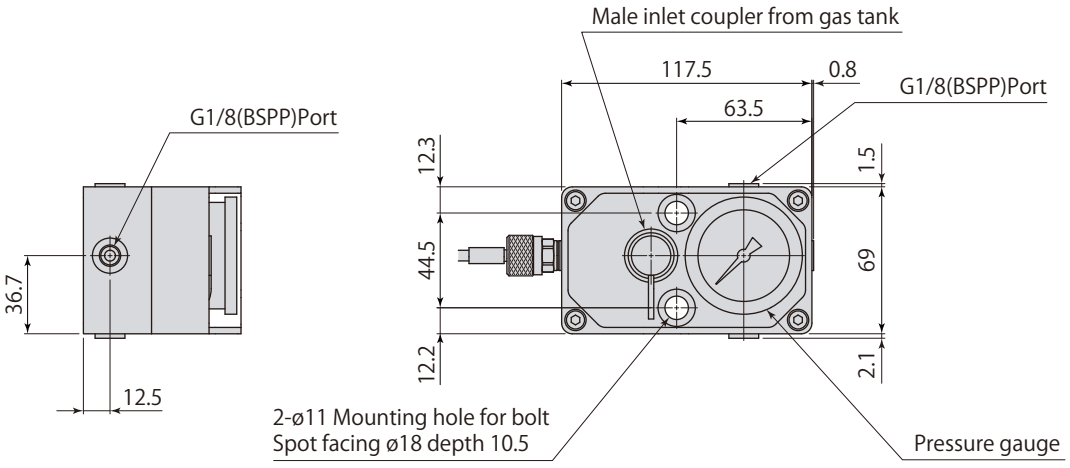
Control panel

DNH - CPB

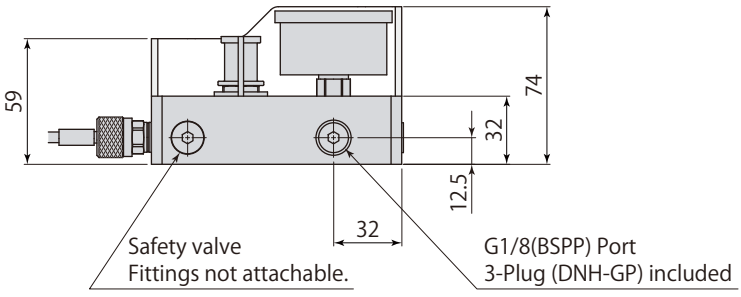
Control panel

DNH - CPB-L

New Vertical specification



- This unit does not have a gas bleeding valve. Be sure to check the stop valve on the charging valve DNJ-HDKA6840 (Refer to **page → 76**) is closed, then connect the charging valve to the coupler (male) and loosen the stop valve slowly to discharge the gas.
- Mount G-thread type adaptor (Refer to **pages → 52～60**). Plug the open ports as necessity. (Refer to **page → 68**)

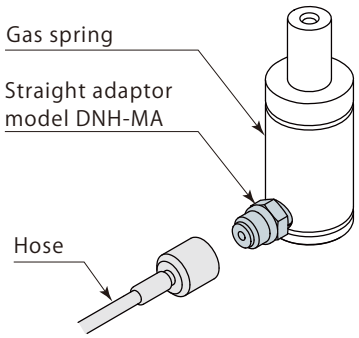


Maximum charging pressure	18 MPa
Operating temperature	0 ～ 70℃
Mass	1500 g

M6 thread type Straight adaptor

DNH - MA

- Used to connect the gas spring with the M6 piping port to the micro hose model DNH-SS, -SE, -EE

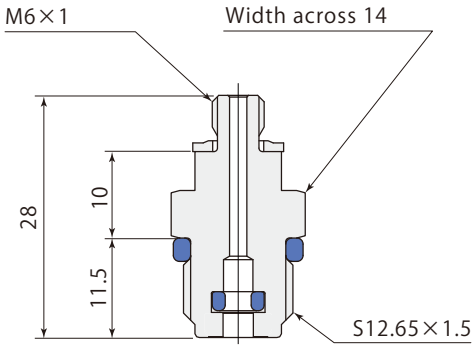


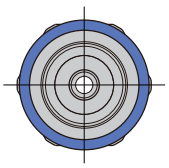
Piping port size	M6 × 1
Tool used	Spanner 14mm
Tightening torque	7 N·m
Mass	20 g

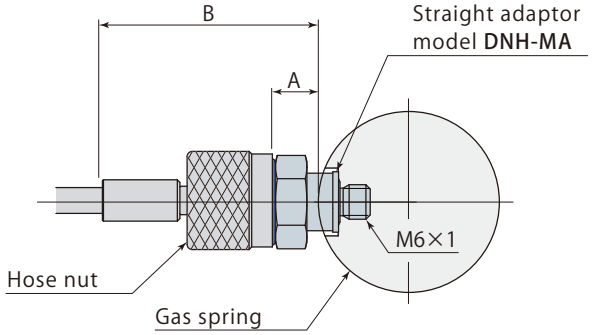
- No check valve inside.

Corresponding gas spring model

DNK0350・DNK0500
DNR0350 ～ DNR2400



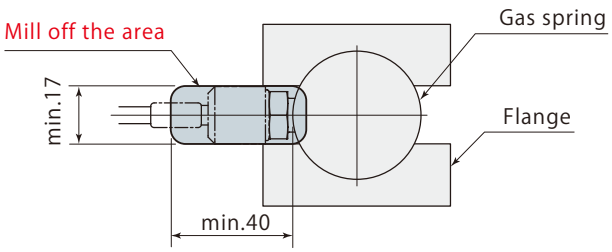


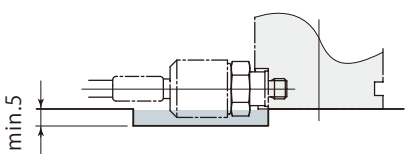


mm

Gas sprring model	A	B
DNK0350・0500	8.6	42.9
DNR0350・0500	8.6	42.9
DNR0750~1500	8.1	42.4
DNR2400	7.1	41.4

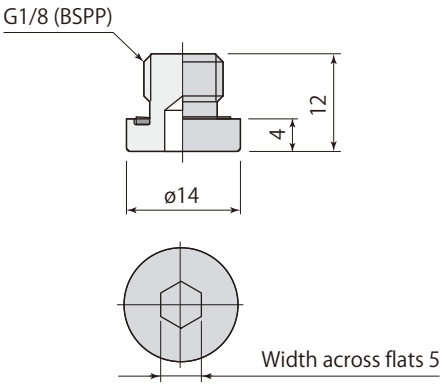
Mill off the blue-colored area as shown below sketch in case of using hose adaptor for model DNR.





Plug

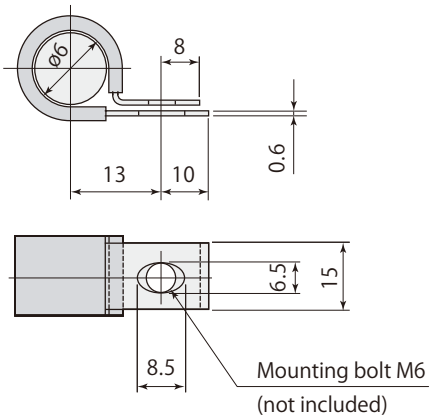
DNH - GP

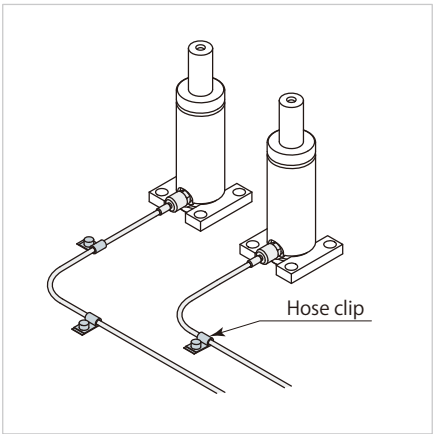


Tool used	Hex wrench 5mm
Tightening torque	12 N·m
Mass	10g

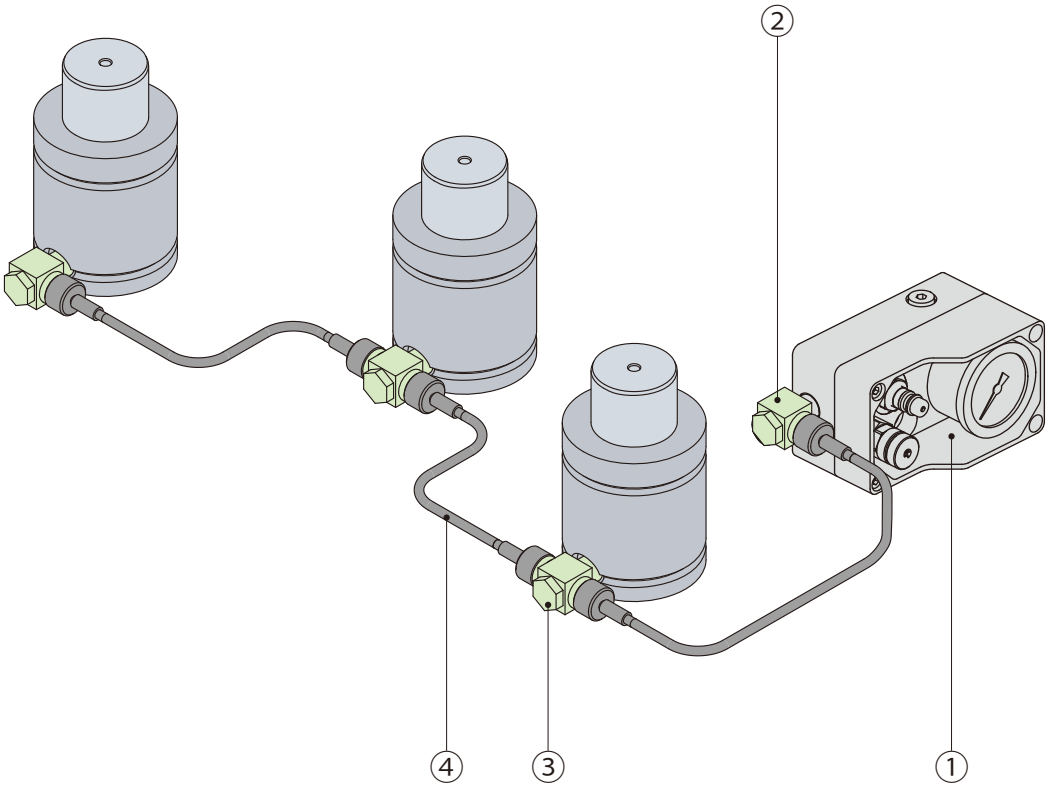
Hose clip

DNH - D6





Mass	5g

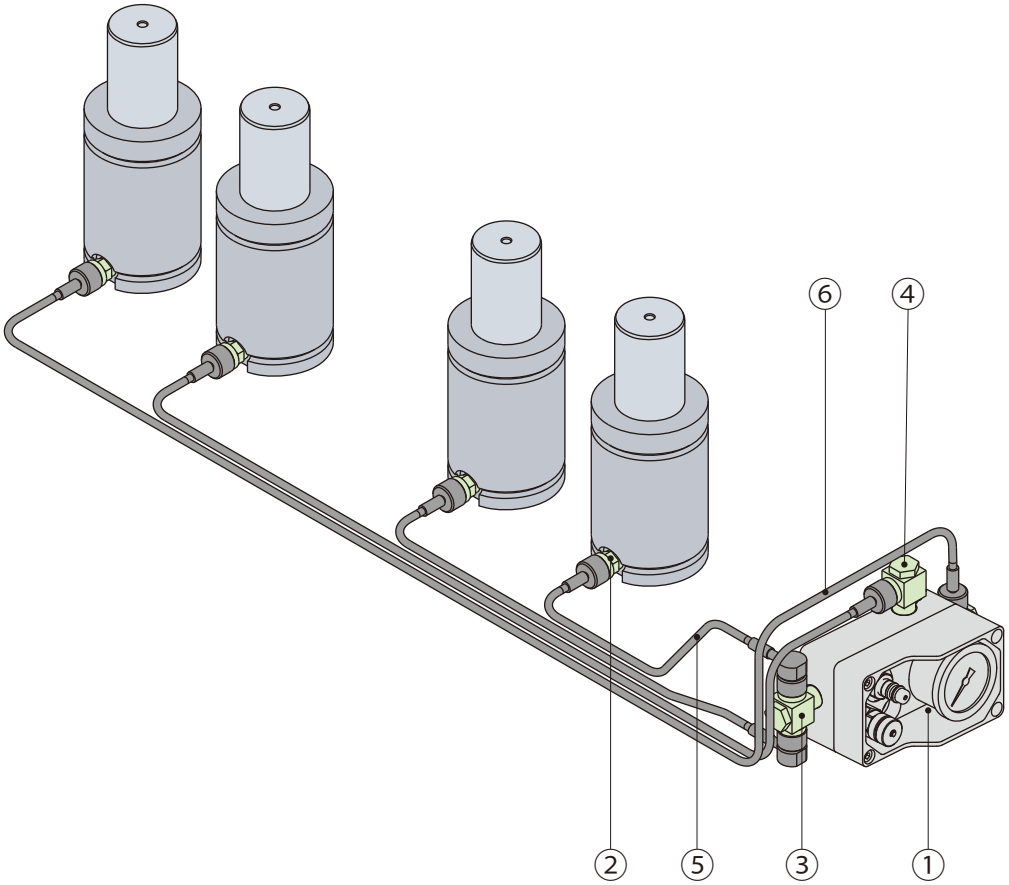


① Control panel
DNH-CPA

② Short swivel elbow adaptor
DNH-GH

③ Short swivel tee adaptor
DNH-GC

④ Straight & Straight hose
DNH-SS



① **Control panel**
DNH-CPA

② **Straight adaptor**
DNH-GA

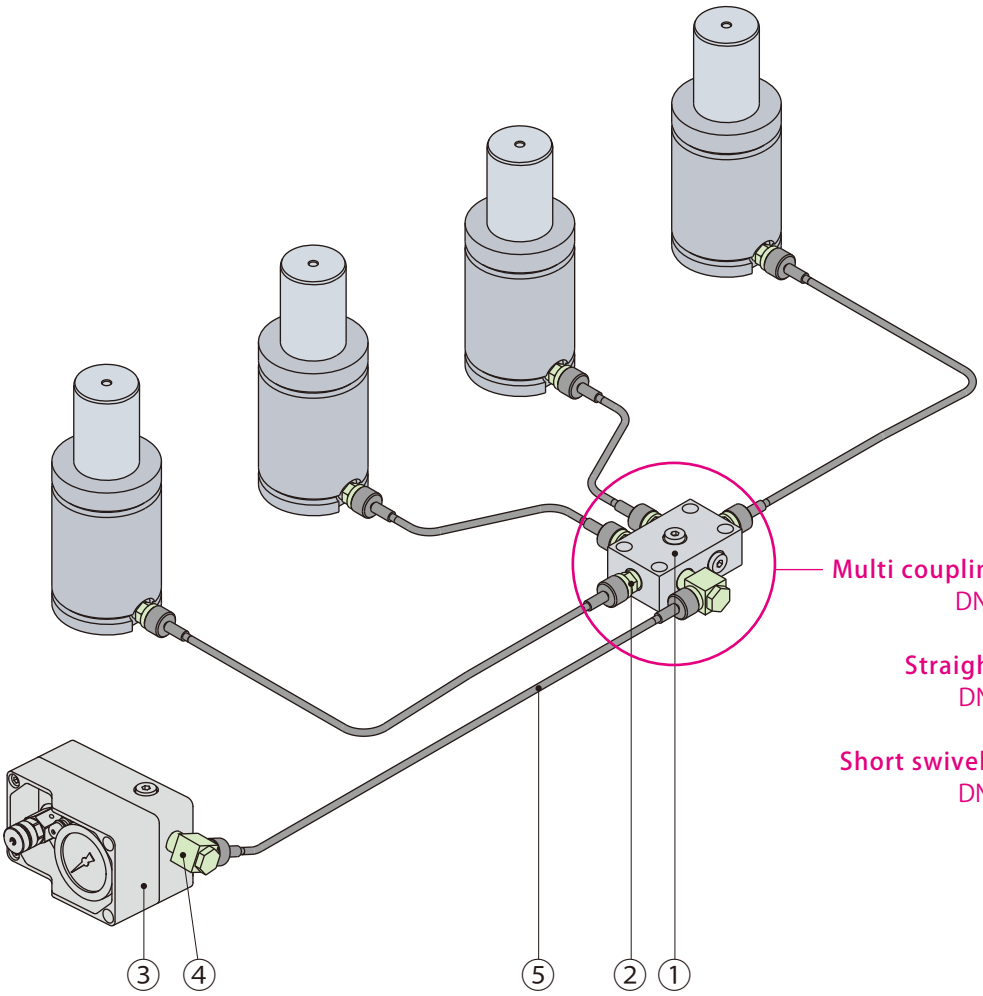
③ **Short swivel tee adaptor**
DNH-GC

④ **Short swivel elbow adaptor**
DNH-GH

⑤ **Straight & 90° hose**
DNH-SE

⑥ **Straight & Straight hose**
DNH-SS

Multi coupling block



Multi coupling block 7 ports
DNH-F07
+
Straight adaptor
DNH-GA
+
Short swivel elbow adaptor
DNH-GH

① **Multi coupling block 7 ports**
DNH-F07

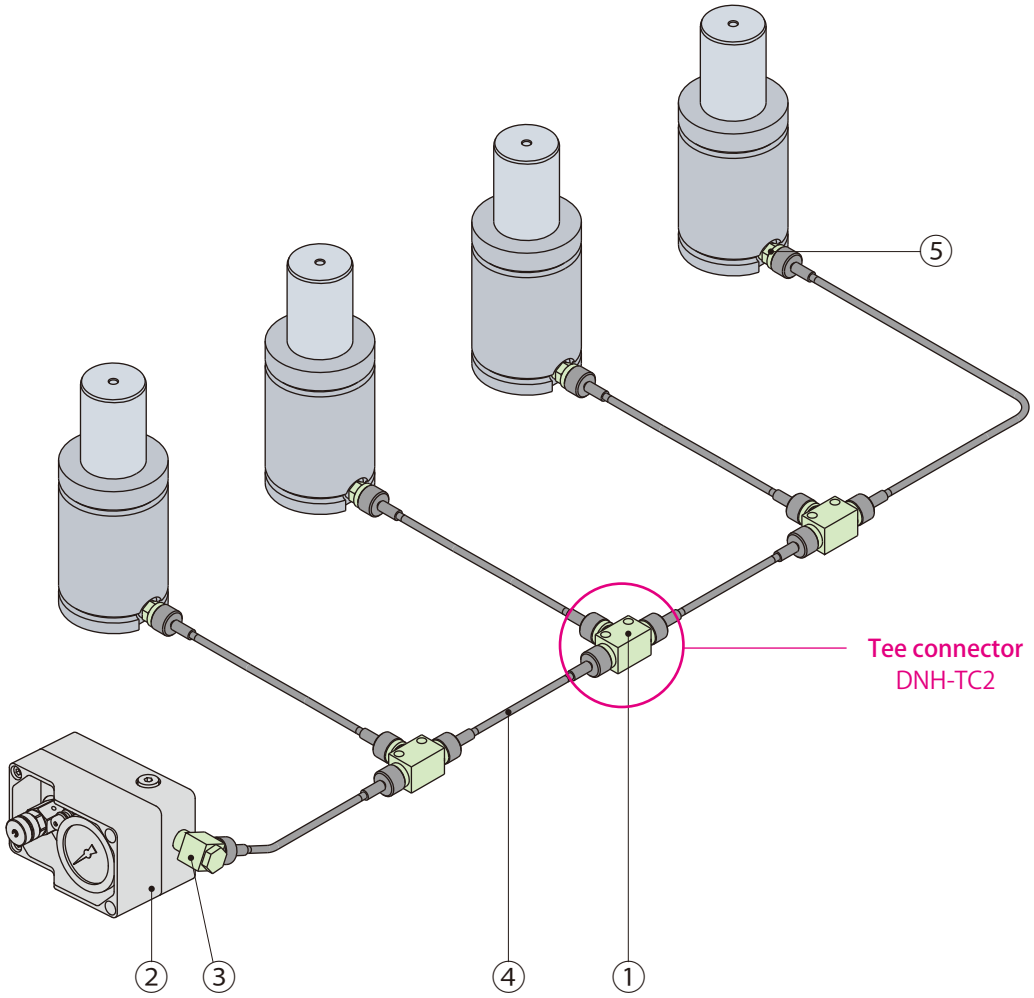
② **Straight adaptor**
DNH-GA

③ **Control panel**
DNH-CPA

④ **Short swivel elbow adaptor**
DNH-GH

⑤ **Straight & Straight hose**
DNH-SS

Tee connector



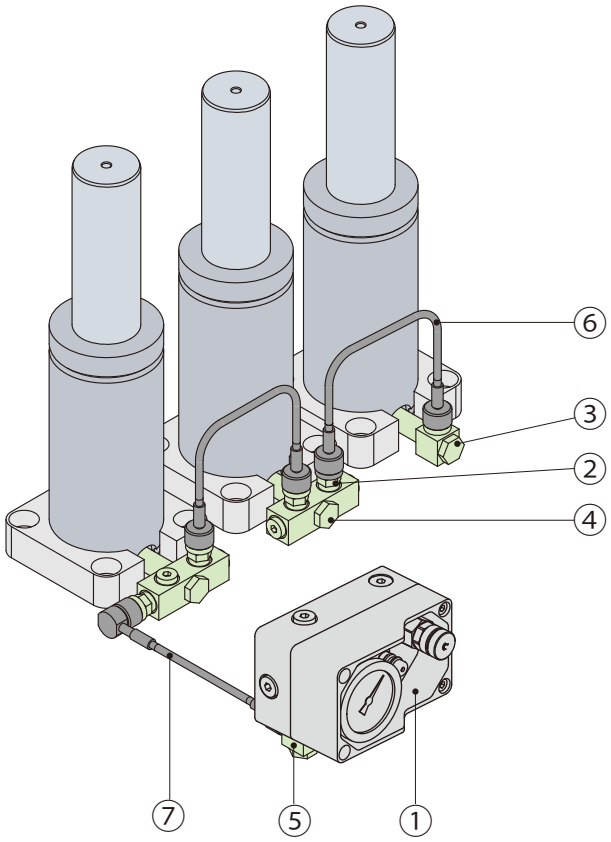
① **Tee connector**
DNH-TC2

② **Control panel**
DNH-CPA

③ **Short swivel elbow adaptor**
DNH-GH

④ **Straight & Straight hose**
DNH-SS

⑤ **Straight adaptor**
DNH-GA



① Control panel
DNH-CPA

② Straight adaptor
DNH-GA

③ Long swivel elbow adaptor
DNH-GL

④ Long swivel multi way adaptor
DNH-GG

② Short swivel elbow adaptor
DNH-GH

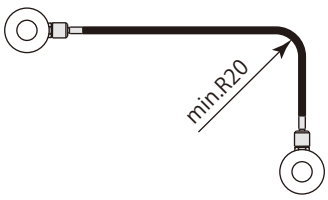
⑤ Straight & Straight hose
DNH-SS

⑥ Straight & 90° hose
DNH-SE

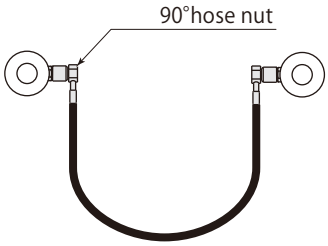
- Hose should have a sufficient length with margin (it is advised to have 10 or 20 % of margin on top of the overall length of piping).

- Carry out the piping installation without twisting hoses.

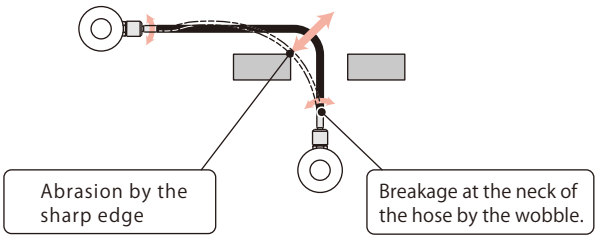
- Piping should not be done with smaller bending radius than the minimum bending radius (R20).

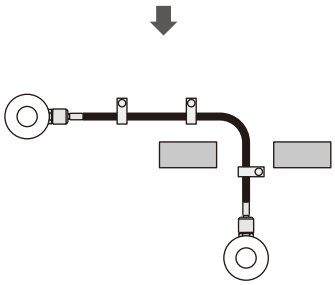


- Choose an adequate hose nut model to avoid bending the hose at sharp angle.



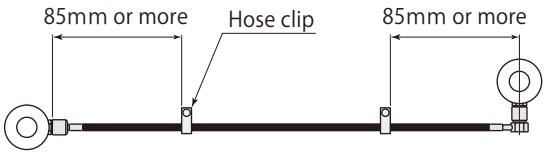
- Be sue to use hose clips to avoid the abrasion by contacting the sharp edges in the die. The hose is wobbled by not only stamping vibration but also thepulse of gas-charge.

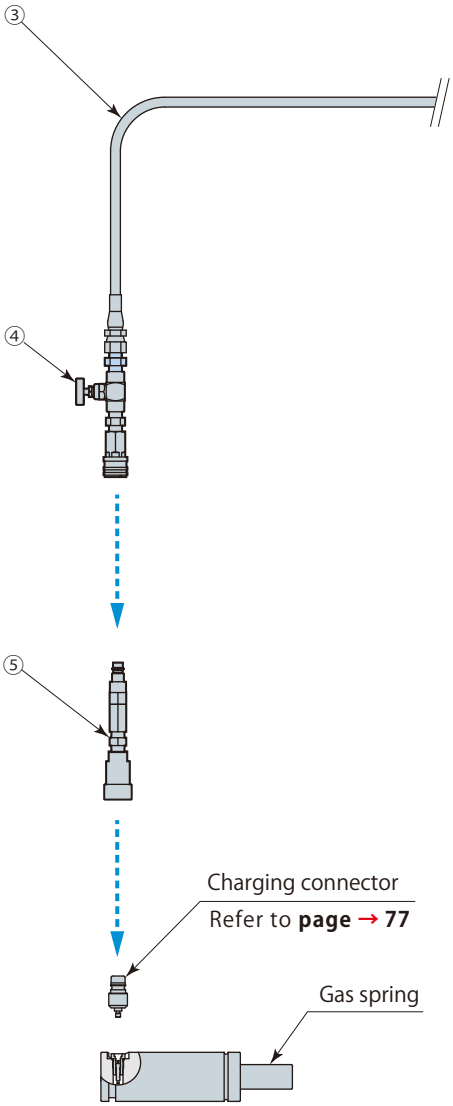




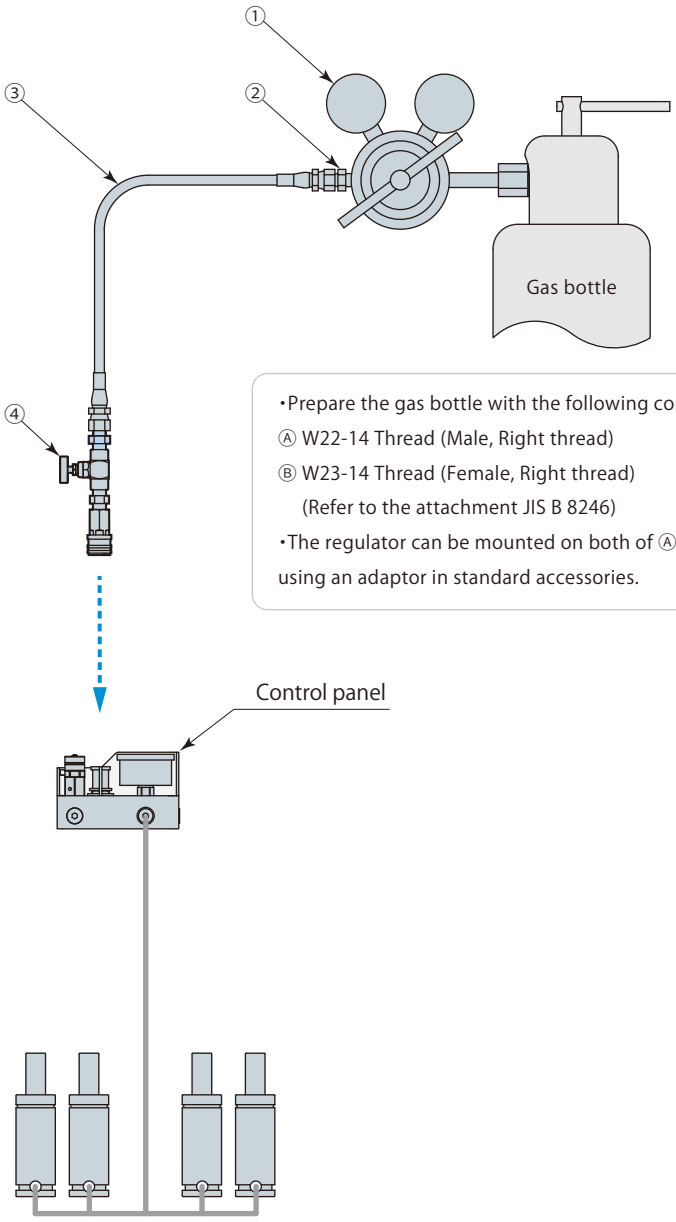
- When using a long hose, use a hose clip to fix the hose at the die side to avoid an effect from vibration.

- Keep the distance from the crimped part when piping the hose with clips.





Charge the gas to an independent gas spring



・Prepare the gas bottle with the following connection port.
Ⓐ W22-14 Thread (Male, Right thread)
Ⓑ W23-14 Thread (Female, Right thread)
(Refer to the attachment JIS B 8246)
・The regulator can be mounted on both of Ⓐ and Ⓑ by using an adaptor in standard accessories.

Charge the gas to a Hose-Linked gas spring system

No.	Name	Model	Remark	Mass g
①	Regulator ＊	3HDKA68601	Adaptor included	3200
②	Hose fitting	3HDKA68602	JIS：A1-6 (JIS B 8363), Thread size：G1/4-R1/4	40
③	High pressure hose	3HDKA68603	Max gas pressure 34MPa, Hose O.D. 10.4mm, Length 3m	400
④	Charging valve	DNJ-HDKA6840	Coupler can be disconnected under pressure.	230
⑤	Adaptor	DNJ-HDKA5470		370

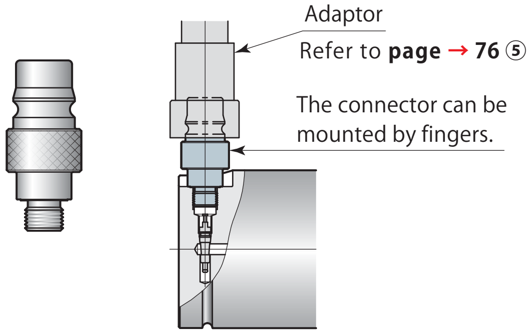
＊ Make sure of thread size of the connection port of the gas bottle in case of using the regulator in overseas countries. It may be different depending upon each country.

Gas charging and discharging kit (Their shape differs depending on the gas spring model.)

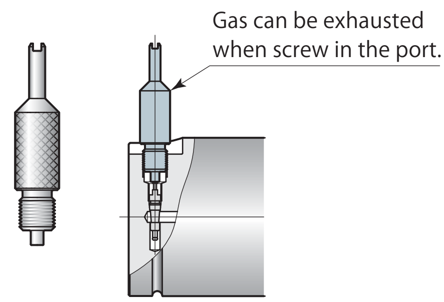
Gas spring model	Charging connector	Discharging tool

DNK1500～9500
DNR4200～9500
DNA1500～5000

model **DNJ-C-CMG**
Mass : 50 g

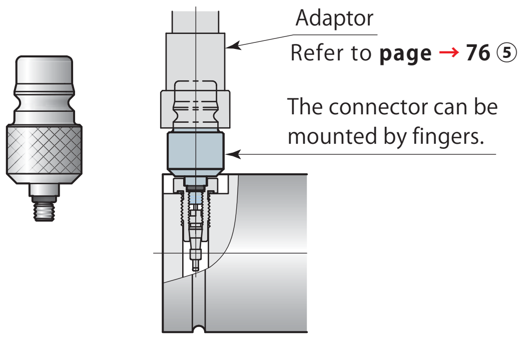


model **DNJ-C-G**
Mass : 30 g

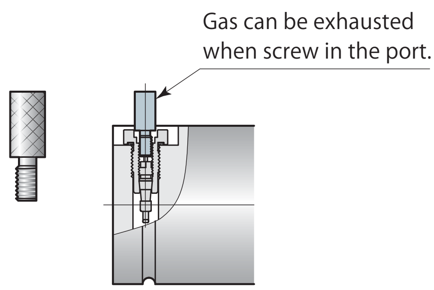


DNK0750 ・ 1000
DNP1000～18300
DNA0250～0750

model **DNJ-C-CM**
Mass : 50 g

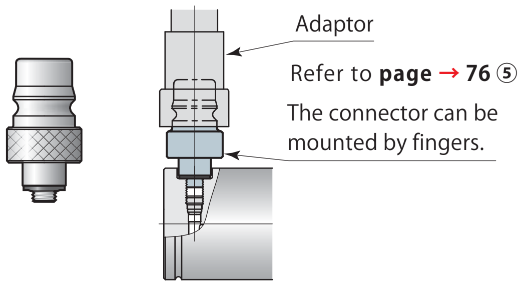


model **DNJ-C-5**
Mass : 10 g

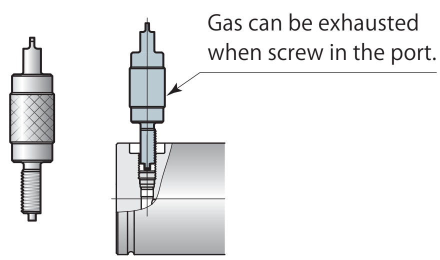


DNK0350 ・ 0500
DNR0350 ～ 2400
DNP0420 ＊

model **DNJ-C-CM6**
Mass : 60 g



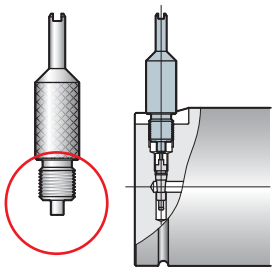
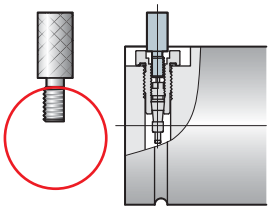
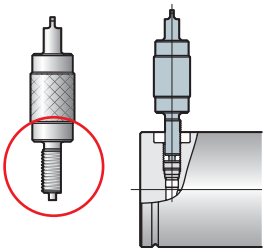
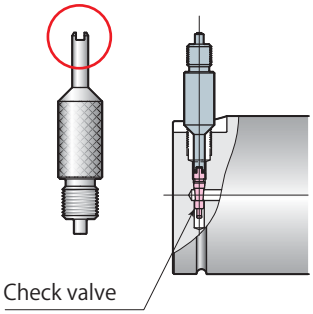
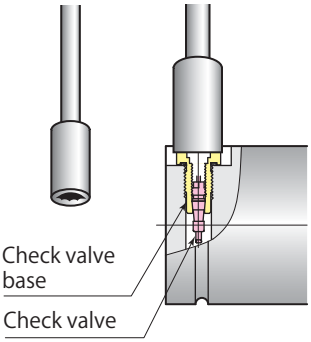
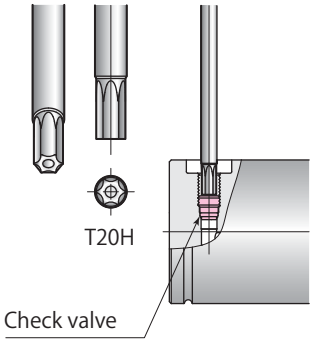
model **DNJ-C-M6**
Mass : 30 g



＊ Gas discharging tool is not available for model DNP0420. In case of disposal, drill a dia 2.5mm hole at the M6 tap at the bottom of the DNP and then discharge N_2 gas completely. Wear safety glasses during discharging job.

How to change the standard body gas spring to piping style (Not covered by warranty)

A check valve with the plug or the valve base must be removed from the body when changing a piping type gas spring.The way of removal of check valve differs according to the shape of the plug.

Check the shape of plug.			
Plug	Round, Silver	Round, Black	Round, Black
Check valve base	—	Hexagonal , Silver	—
Gas discharging tool	model DNJ-C-G	model DNJ-C-5	model DNJ-C-M6
Necessary tool	Allen key wrench (5mm)	Flathead screwdriver, 14mm Socket wrench	Allen key wrench (2.5mm), T20H Tool
1 Remove a plug with the tool.	Allen key wrench (5mm)	Flathead screwdriver	Allen key wrench (2.5mm)
2 Discharge the gas by using the thread side of gas chaging tool.	model DNJ-C-G 	model DNJ-C-5 	model DNJ-C-M6 
3 Remove a check valve/check valve base by using the gas charging tool (the other side of thread) ,14mm socket wrench or T20H tool.	model DNJ-C-G 	14mm Socket wrench 	T20H Tool 

- When removing the a check valve, be careful not to make any chips and depris intrude into the check valve.
- The above modification shall be performed at customer's own risk.

Gas Charge / Discharge

- Charge Nitrogen (N_2) gas only. Never charge flammable, explosive gas and volatile liquid as they may cause an explosion accident. (FIG. 1)

- The charging pressure should be below the designated pressure in the marking. (FIG. 2)
  Gas charging range : 3.4 MPa ～ 15 MPa (at 20℃).
  3.4 MPa ～ 18 MPa for model DNK0350 and DNR0350 only.

- Continue to charge gas till the sound of gas flow disappear even if the pressure gauge points the set pressure. (FIG. 2)

- Gas charging should be done with the piston rod fully out. If piston rod retracted in the cylinder, start charging as lower pressure as possible (0.5 MPa or lower) then increase the pressure gradually till the piston rod extended out, in order to avoid personal injury and damages of facility and equipments. (FIG. 3)

- Do not charge/discharge gas while the gas spring is under load.

- Exhaust the N_2 gas completely before disposal. Refer to **page → 77** for gas discharging tool.

- Those gas springs for use outside Japan (specified as -OS) are shipped without gas. The user needs to charge gas before use. After charging gas, the charging gas pressure should be recorded on the pressure indication label of each gas spring by a permanent marker.

FIG. 1

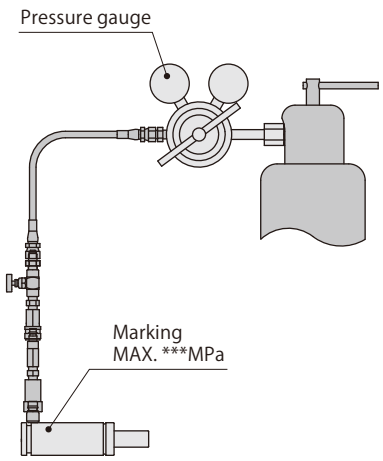


FIG. 2

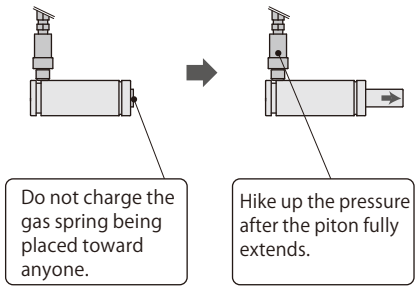


FIG. 3