

Hydraulic Lever Clamp

T-Slot Manual-Slide

Model **GBB**

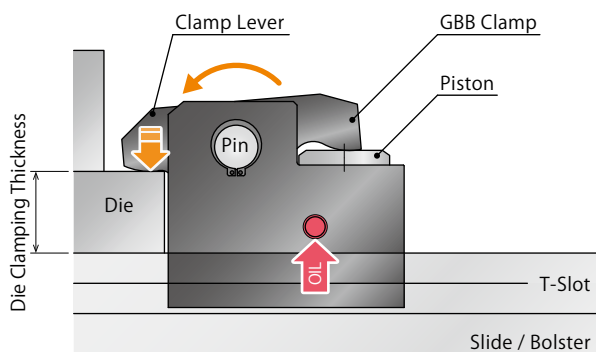
NEW (Conventional Model GB)



No U-cut is required on the die.

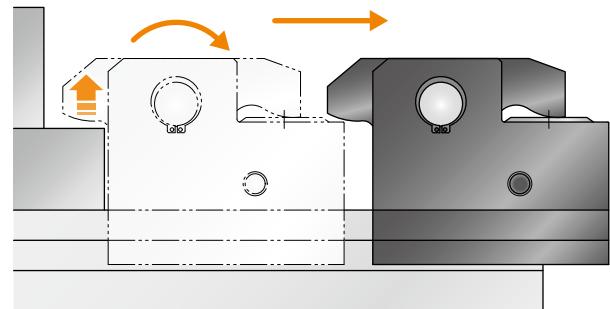
Basic circuit structure with a single hydraulic circuit.
We provide a variety of options to meet your needs.

● Action Description



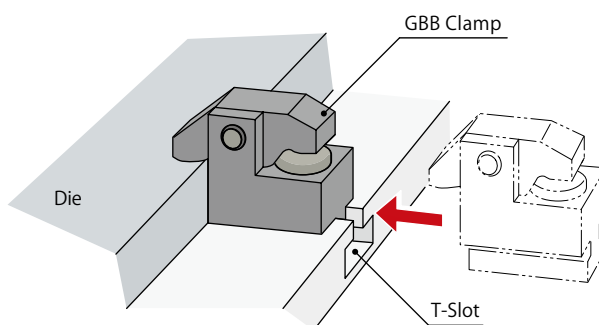
Locked State

When hydraulic pressure is supplied, the piston lifts up, and the clamp lever pivots on the pin and locks the die.



Released State

When hydraulic pressure is released, the piston descends with built-in spring force and the clamp lever returns to the released state. The clamp can now be moved in the T-slot.



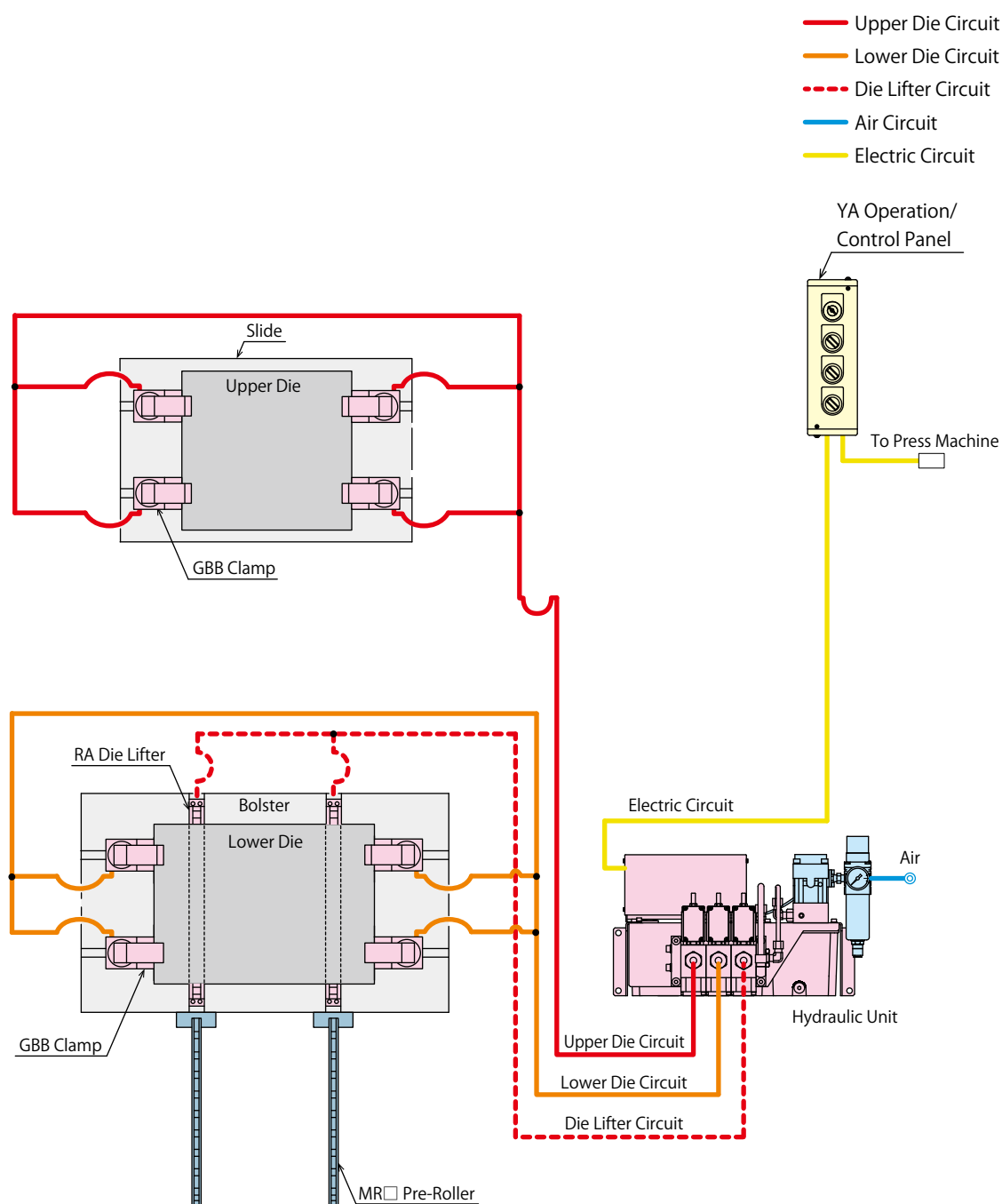
※ We provide GBB clamp according to the die clamping thickness and T-slot dimension.
Please refer to the external dimensions for detail.

System Structure Example

The basic structure with GBB clamps that slide manually in the T-slot. This system is able to control the upper die circuit, lower die circuit, and RA die lifter circuit individually by using a three-circuit hydraulic unit.

Upper Clamp	: GBB Clamp
Lower Clamp	: GBB Clamp
Loading / Unloading the Die	: MR□ Pre-Roller + RA Die Lifter
Hydraulic Source	: CP□ Unit / CQ□ Unit

We are able to provide different models of clamp for the upper die and lower die.
Please contact us for further information.



Clamp Hydraulic Unit Operation Control Panel
Die Lifter Pre-Roller
Accessories
Cautions Company Profile

Clamp
GA
GD
GBB
GBE
GBC
GBF
GBP
GBQ
GN

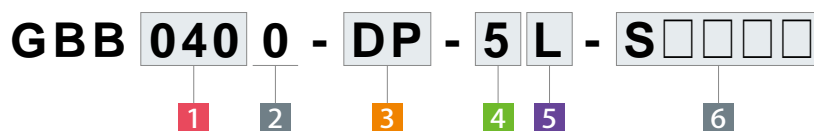
Hydraulic Unit
CP
CR
CPB
CPD
CPC
CPE
CQC
CQE

Pump Unit
CB
CD
CC

Valve Unit
BC
BH
MV

Operational Control Panel
YP
YA

Model No. Indication



1 Clamping Force

010 : Clamping Force= 10kN	100 : Clamping Force= 100kN
016 : Clamping Force= 16kN	160 : Clamping Force= 160kN
025 : Clamping Force= 25kN	250 : Clamping Force= 250kN
040 : Clamping Force= 40kN	400 : Clamping Force= 400kN
063 : Clamping Force= 63kN	500 : Clamping Force= 500kN

2 Design No.

0 : Revision Number

3 Option ※ Please contact us for specifications / external dimensions.

Blank : Standard

A : Slide Rod (For U-Cut)

B : Slide Rod (For Tap)

D : With Handle (GBB0630 or larger)

E : Reinforced Body

H : Extra Height Body (When h dimension is more than max. h dimension shown in the external dimension.)

J : Low Lever (When h dimension is less than min. h dimension shown in the external dimension.)

K : Rear Port

L□ : Wide Lever (For U-Cut of Die) ※¹

M□ : For Die with Notch

N : NPT Port ※²

P : With Die Confirmation Proximity Switch ※⁴

R : Longer D Dimension of T-Leg

T : T-Slot Locking

U□ : With Grease Nipple (Only for GBB0400~2500) (Standard Option for GBB4000/GBB5000)

V : High Temperature (0~120°C) ※³

W : With Check Valve (GBB1000 or larger)

X : With Cover

Notes:

※1. Please indicate the U-cut dimension of the die.

※2. Dimensions in the specification sheet and other documents are in written in Inches.

※3. Select the hydraulic unit with pressure relief valve when using under high temperature since there may be pressure fluctuation caused by temperature change.

4 Switch Load Voltage (Current) ※4. Only when P (Proximity Switch for Die Detection) is chosen.

1 : AC100V

2 : AC200V

5 : DC24V (5~40mA)

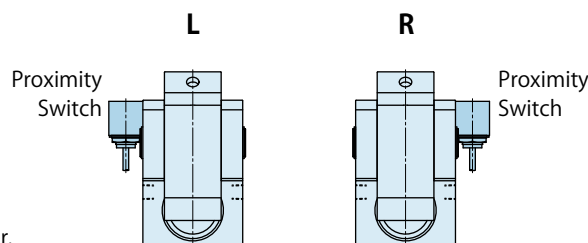
5 Switch Mounting Position ※4. Only when P (Proximity Switch for Die Detection) is chosen.

L : Left (Left Side as Seen from Clamp Back Side)

R : Right (Right Side as Seen from Clamp Back Side)

6 Production Number

This number represents the main specification of the clamp's T-slot stem and the clamping height. After the specification is confirmed, we will create a number.

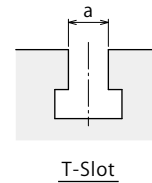


Specifications

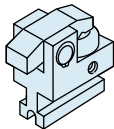
Model No.		GBB0100	GBB0160	GBB0250	GBB0400	GBB0630	GBB1000	GBB1600	GBB2500	GBB4000	GBB5000
Clamping Force	kN	10	16	25	40	63	100	160	250	400	500
Working Pressure	MPa	25 (For Rated Clamp Force)									
Withstanding Pressure	MPa	37									
Full Stroke	mm	6	7	7	7	8	8	8	8	8	8
Clamp Stroke	mm	3	3.5	3.5	3.5	4	4	4	4	4	4
Extra Stroke	mm	3	3.5	3.5	3.5	4	4	4	4	4	4
Cylinder Capacity (At Full Stroke) cm ³		2.5	4.6	7.2	11.5	20.6	33.6	53.8	83.8	130.8	166.0
Operating Temperature ※5 °C		0~70 (V: High temperature option is available for 0~120°C)									
Use Frequency ※6		20 Cycles / Day or less									
Pressurizing Agent ※7 ※8 ※9		General Hydraulic Oil Equivalent to ISO-VG-32									
Min. T-Slot Width a (JIS) ※10 mm		10	12	14	18	22	24	28	36	36	36 (2 T-Legs)
Max. T-Slot Width a (JIS) ※10 mm		20	24	32	42	42	54	54	54	54	42 (2 T-Legs)

Notes:

- ※5. Option V: High Temperature (0~120°C) is for operating in temperatures of 70°C or more.
- ※6. Please contact us for more frequent use.
- ※7. Please contact us for fluids other than those mentioned on the list.
- ※8. If hydraulic viscosity is higher than specified, action time will be longer.
- ※9. If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.
- ※10. It shows reference dimensions. The dimension may differ from specification depending on T-slot (T-leg) dimension, dimension of clamp cylinder that sticks out of T-slot during lock action, or body material.

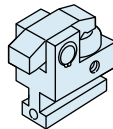


Option



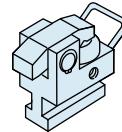
Slide Rod (For U-Cut)
Put a stick into the U-cut to move the backside clamp (B: for tap).

Model **GBB-A**



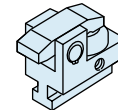
Slide Rod (For Tap)
Move the clamp by a stick mounted in the thread part.

Model **GBB-B**



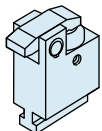
With Handle (GBB0630 or larger)

Model **GBB-D**



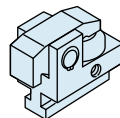
Reinforced Body

Model **GBB-E**



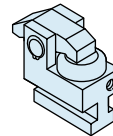
Extra Height Body

Model **GBB-H**



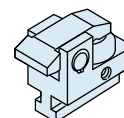
Low Lever

Model **GBB-J**



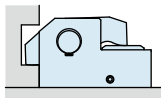
Rear Port

Model **GBB-K**



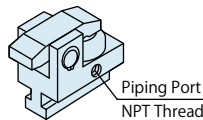
Wide Lever (For U-Cut of Die)

Model **GBB-L** □



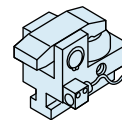
For Die with Notch

Model **GBB-M** □



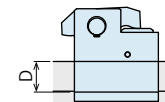
NPT Port

Model **GBB-N**



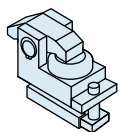
With Die Confirmation Proximity Switch

Model **GBB-P**



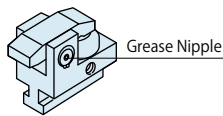
Longer D-Dimension of T-Leg

Model **GBB-R**



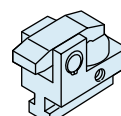
T-Slot Locking

Model **GBB-T**



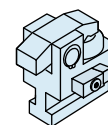
With Grease Nipple

Model **GBB-U** □



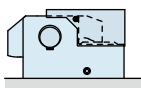
High Temperature 0 ~ 120 °C

Model **GBB-V**



With Check Valve (GBB1000 or larger)

Model **GBB-W**



With Cover

Model **GBB-X**

Note:

- Specifications/external dimensions for these options are different from standard model. Please contact us for further information.

Clamp Hydraulic Unit Operation Control Panel

Die Lifter Pre-Roller

Accessories

Cautions Company Profile

Clamp

GA

GD

GBB

GBE

GBC

GBF

GBP

GBQ

GN

Hydraulic Unit

CP

CR

CPB

CPD

CPC

CPE

CQC

CQE

Pump Unit

CB

CD

CC

Valve Unit

BC

BH

MV

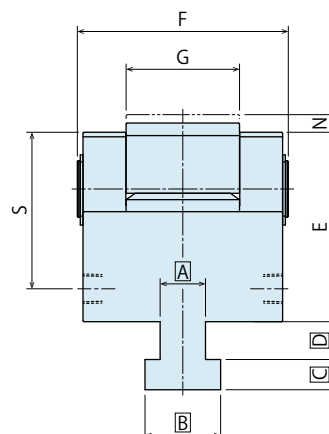
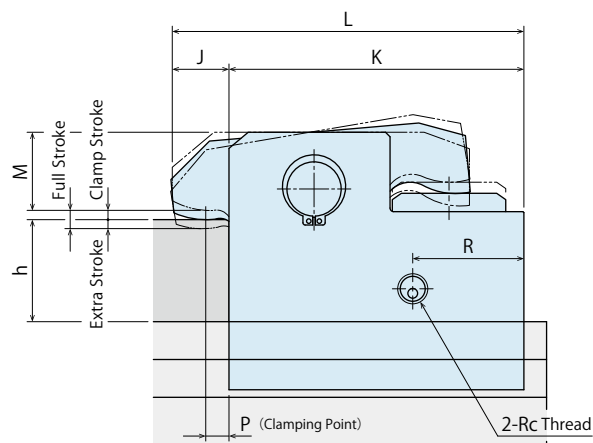
Operational Control Panel

YP

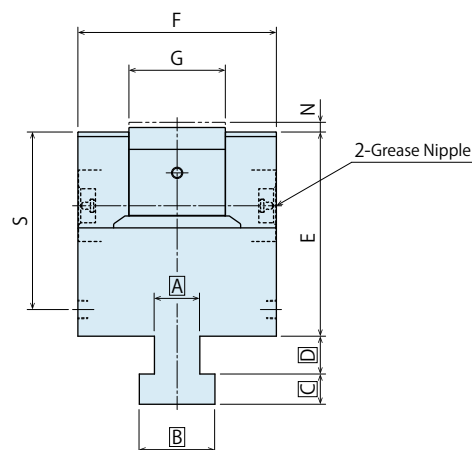
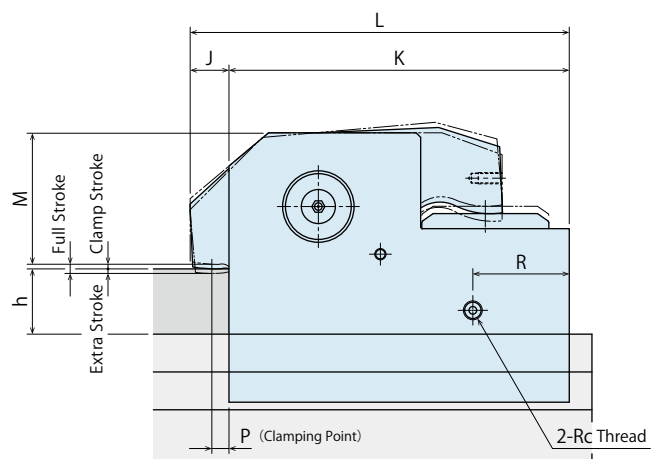
YA

External Dimensions

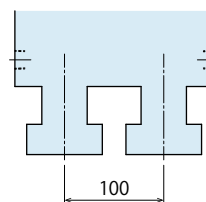
- ※ This drawing shows GBB0100~GBB2500 standard model.
Contact us for external dimensions for options.



- ※ This drawing shows GBB4000 standard model.
Contact us for external dimensions for options.



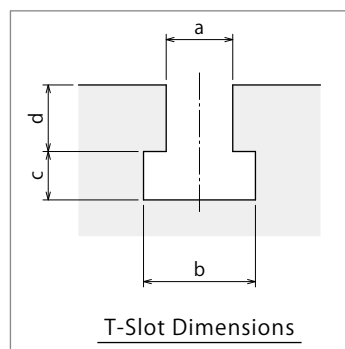
- ※ Only T-leg part of GBB5000 is different from GBB4000. GBB5000 has two T-legs.
Contact us for external dimensions for options.



Notes:

1. Do not exceed the clamping force on the specification.
2. Specifications/Contents in this catalog are subject to change without prior notice. Ask for the approval drawing before deciding to purchase.

T-Slot Dimensions



External Dimensions

(mm)

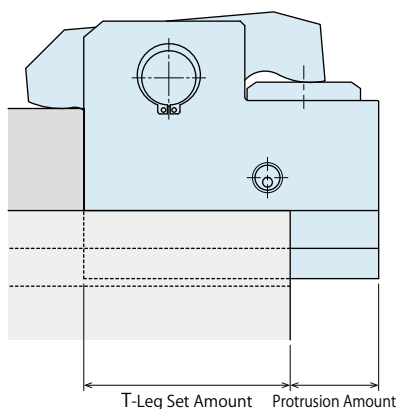
Model No.	GBB0100	GBB0160	GBB0250	GBB0400	GBB0630	GBB1000	GBB1600	GBB2500	GBB4000	GBB5000
Full Stroke	6	7	7	7	8	8	8	8	8	8
Clamp Stroke	3	3.5	3.5	3.5	4	4	4	4	4	4
Extra Stroke	3	3.5	3.5	3.5	4	4	4	4	4	4
min. E	42.5	49	58	66	81	105.5	122.5	144.5	177.5	202.5
F	43	53	63	73	93	103	124	152	175	200
G	20	26	32	38	50	53	60	73	85	100
J	15	17	19	22	25	30	30	30	35	37
K	58	70	84	105.5	130	159	199	240	300	340
L	73	87	103	127.5	155	189	229	270	335	377
M(h)	21.5 (20)	27.5 (20)	31.5 (25)	39.5 (25)	49.5 (30)	64 (40)	81 (40)	98 (45)	126 (50)	141 (60)
	16.5 (25)	22.5 (25)	26.5 (30)	34.5 (30)	44.5 (35)	59 (45)	76 (45)	93 (50)	121 (55)	136 (65)
	16.5 (30)	17.5 (30)	21.5 (35)	29.5 (35)	39.5 (40)	54 (50)	71 (50)	88 (55)	116 (60)	131 (70)
	16.5 (35)	17.5 (35)	21.5 (40)	29.5 (40)	34.5 (45)	49 (55)	66 (55)	83 (60)	111 (65)	126 (75)
	16.5 (40)	17.5 (40)	21.5 (45)	29.5 (45)	29.5 (50)	44 (60)	61 (60)	78 (65)	106 (70)	121 (80)
	-	-	21.5 (50)	29.5 (50)	29.5 (55)	44 (65)	61 (65)	78 (70)	106 (75)	116 (85)
	-	-	-	-	29.5 (60)	44 (70)	61 (70)	78 (75)	106 (80)	-
	-	-	-	-	-	-	61 (75)	78 (80)	106 (85)	-
N	5.5	6.5	6.5	6.5	8	8	9	9.5	9.5	10
P	6	8	8	10	10	10	10	10	12	13
R	27	27	37	42	49	68	73	69.5	85	90
S	33.5	40	46	54	69	93.5	108.5	127.5	156.5	174.5
Rc	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc1/4	Rc1/4	Rc1/4	Rc1/4	Rc3/8	Rc3/8
min. h	20	20	25	25	30	40	40	45	50	60
max. h	40	40	50	50	60	70	80	80	85	85

Notes:

- If you would like to change the ratio of clamp stroke and extra stroke, please contact us.
- A, B, C, D dimensions are determined by Kosmek according to the T-slot dimensions.
- When making an order, please indicate a, b, c, d dimension of T-slot and h dimensions of die clamping thickness.
- Please indicate the dimensions of a, b, c, d and h in 0.1mm increments.

GBB Clamp The Allowable Protrusion Amount of Cylinder

(mm)



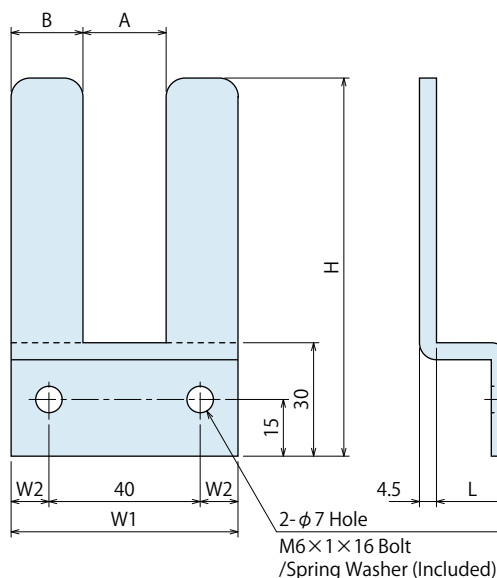
Model No.	Min. T-Leg Set Amount	Allowable Protrusion Amount
GBB0100	40.5	17.5
GBB0160	49.0	21.0
GBB0250	59.0	25.0
GBB0400	73.5	32.0
GBB0630	91.0	39.0
GBB1000	114.0	45.0
GBB1600	142.0	57.0
GBB2500	170.5	69.5
GBB4000	-	0
GBB5000	-	0

Note:

- The dimensions on the list are for reference. The dimensions may differ from specification depending on T-slot (T-leg) dimension or body material.

Accessory : GBH Clamp Hook

(mm)

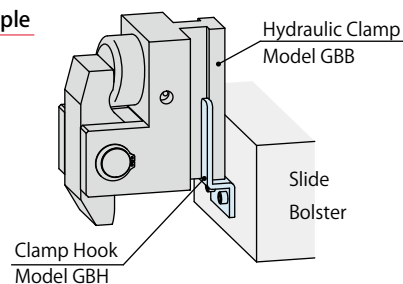


Model No.	GBH181	GBH221	GBH281
A	18	22	28
B	21	19	21
H	100	100	110
L	19	19	25
W1	60	60	70
W2	10	10	15

Note :

- Please do not operate the press machine continuously with clamp suspended from clamp hook. Clamp hook should be used only during the die change.

Application Example



Clamp Hydraulic Unit
Operation Control Panel

Die Lifter Pre-Roller

Accessories

Cautions Company Profile

Clamp

GA

GD

GBB

GBE

GBC

GBF

GBP

GBQ

GN

Hydraulic Unit

CP

CR

CPB

CPD

CPC

CPE

CQC

CQE

Pump Unit

CB

CD

CC

Valve Unit

BC

BH

MV

Operational Control Panel

YP

YA

Cautions

Notes for Design

1) Check Specifications

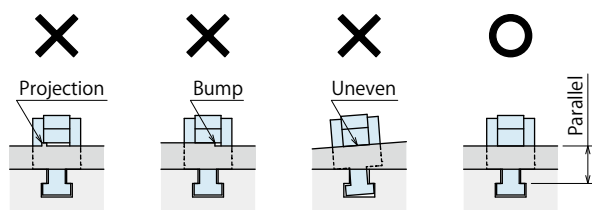
- Please use each product according to its specifications.
- Operating pressure is 25MPa.
Operating pressure of GN clamp : Hydraulic pressure for lock is 25MPa.
Pneumatic pressure for release is 0.4~0.5MPa.
Do not use clamps with excessive operating pressure.
Falling down of the die due to the damage on clamps leads to injury accident. In order to reduce clamping force, use them with lower operating pressure.

2) Check the Die Clamping Thickness

- Please check the die clamping thickness.
The die clamping thickness of GN clamp should be $h \pm 0.5\text{mm}$.
If using dies other than prescribed, clamps cannot conduct locking action normally and it leads to accident or injury.

3) Clamp surface and T-slot must be parallel to mounting surface of the die.

- If clamp surface is not even or parallel, excessive force is applied to the clamp and it deforms main body and lever of the clamp resulting in accident or injury.



4) Make sure that advance/retraction of the clamp is smoothly conducted. (Model GD / GBE / GBF)

- Please control air cylinder for slide with two-position double solenoid (with detent).
- Supply 0.4MPa or more air pressure to air cylinder.
- Please adjust the moving speed of the clamp with speed controller to be fully stroked within 1 to 2 seconds.
- Do not set the proximity switch to the die surface near the U-cut, since it is used as forward-end detection.
- The clamp sliding surface must be smooth (without any bumps).

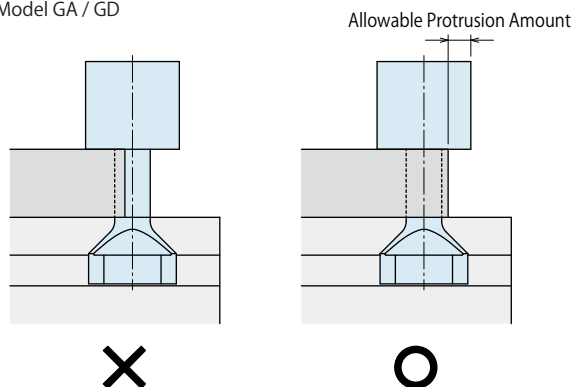
5) Make sure that dust, sand, cutting chips or blank pieces do not enter the clamp.

- Clamp does not operate smoothly and may be damaged.

6) When the clamp cylinder sticks out of U-cut or T-slot, please use it within the allowable protrusion amount.

- U-Cut of the Die : Model GA / GD
- T-Slot of the Slider / Bolster : Model GBB / GBE / GBC / GBF

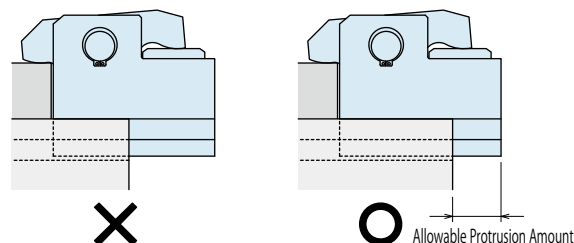
Model GA / GD



Allowable Protrusion Amount

Model No.	Allowable Protrusion Amount (mm)
GA0100	13
GA0160	14
GA0250 / GD0250	17
GA0400 / GD0400	20
GA0630 / GD0630	26
GA1000 / GD1000	32
GA1600 / GD1600	42
GA2500	50

Model GBB / GBE / GBC / GBF

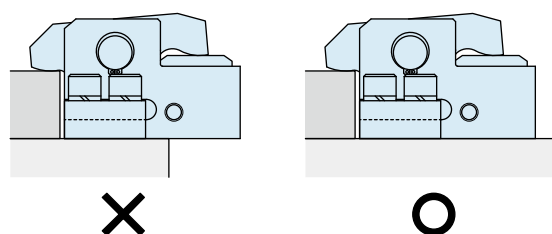


Allowable Protrusion Amount

Model No.	Allowable Protrusion Amount (mm)
GBB0100 / GBE0100	17.5
GBB0160 / GBE0160	21
GBB0250 / GBE0250 / GBC0250 / GBF0250	25
GBB0400 / GBE0400 / GBC0400 / GBF0400	32
GBB0630 / GBE0630 / GBC0630 / GBF0630	39
GBB1000 / GBE1000 / GBC1000 / GBF1000	45
GBB1600 / GBE1600 / GBC1600 / GBF1600	57
GBB2500 / GBE2500 / GBC2500 / GBF2500	69.5
GBB4000 / GBE4000 / GBC4000 / GBF4000	0
GBB5000 / GBE5000 / GBC5000 / GBF5000	0

7) Be careful with mounting position of the clamp. (Model GBP/GBQ only)

- Make sure that main body of the clamp is not out of the mounting surface. Excessive force is applied to the clamp and it deforms the clamp or damages mounting bolt resulting in falling off of the die and accident or injury.



● Installation Notes

1) Check the fluid to use.

- Please use the appropriate fluid by referring to the Hydraulic Fluid List.
- If using hydraulic oil having viscosity higher than viscosity grade ISO-VG-32, action time will be longer.
- If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.

2) Procedure before Piping

- The pipeline, piping connector and fixture circuits should be cleaned by thorough flushing. The dust and cutting chips in the circuit may lead to fluid leakage and malfunction. (There is no filter provided with this product for prevention of contaminants in the hydraulic piping or hydraulic system.)

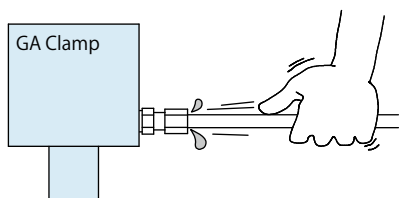
3) Applying Sealing Tape

- Wrap with tape 1 to 2 times following the screwing direction. When piping, be careful that contaminants such as sealing tape do not enter in products. Pieces of the sealing tape can lead to oil leaks and malfunction.

4) Air Bleeding in the Hydraulic Circuit

- If the hydraulic circuit has excessive air, the action time may become very long. If air enters the circuit after connecting the hydraulic port or under the condition of no air in the oil tank, please conduct air bleeding with the end of the piping.

- ① Reduce supply hydraulic pressure to less than 2MPa.
- ② Please loosen the cap nut of pipe fitting that is closest to clamps · RA Die Lifter by one full turn.
- ③ Wiggle the pipeline to loosen the outlet of pipeline fitting. The hydraulic fluid mixed with air comes out.



- ④ Tighten the cap nut after bleeding.
- ⑤ It is more effective to bleed air at the highest point inside the circuit or at the end of the circuit.

5) Checking Looseness and Retightening

- At the beginning of the machine installation, the bolt/nut may be tightened lightly. Check torque and re-tighten as required.

6) Mounting the clamp

- After setting the clamp in the T-slot, use attached hex. socket bolts and tighten it with the torque shown below (Model GD / GBE / GBF).

Model No.	Thread Size	Tightening Torque (N·m)
GD0250	M6×1	10
GD0400	M6×1	10
GD0630	M6×1	10
GD1000	M8×1.25	25
GD1600	M8×1.25	25

Model No.	Thread Size	Tightening Torque (N·m)
GBE0250 / GBF0250	M5×0.8	6.3
GBE0400 / GBF0400	M5×0.8	6.3
GBE0630 / GBF0630	M6×1	10
GBE1000 / GBF1000	M8×1.25	25
GBE1600 / GBF1600	M10×1.5	50
GBE2500 / GBF2500	M12×1.75	80
GBE4000 / GBF4000	M16×2	200
GBE5000 / GBF5000	M16×2	200

- Use attached hex. socket bolts and tighten it with the torque shown below (Model GBP / GBQ / GN).

Model No.	Thread Size	Tightening Torque (N·m)
GBP0100 / GBQ0100	M8×1.25	25
GBP0160 / GBQ0160	M10×1.5	50
GBP0250 / GBQ0250	M12×1.75	80
GBP0400 / GBQ0400	M14×2	125
GBP0630 / GBQ0630	M16×2	200
GBP1000 / GBQ1000	M20×2.5	400
GBP1600 / GBQ1600	M24×3	630
GBP2500 / GBQ2500	M30×3.5	1250

Model No.	Thread Size	Tightening Torque (N·m)
GN0251	M6×1	12
GN0401	M8×1.25	30
GN0631	M8×1.25	30
GN1001	M8×1.25	30

7) Wiring of the Forward End Detection Switch

- Make sure there is enough slack in the wire so that the clamp can complete the sliding action without putting tension on the wire.

● Hydraulic Fluid List

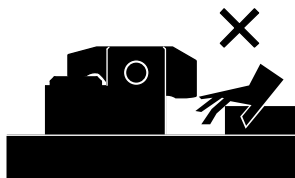
Maker	ISO Viscosity Grade ISO-VG-32	
	Anti-Wear Hydraulic Oil	Multi-Purpose Hydraulic Oil
Showa Shell Sekiyu	Tellus S2 M 32	Morlina S2 B 32
Idemitsu Kosan	Daphne Hydraulic Fluid 32	Daphne Super Multi Oil 32
JX Nippon Oil & Energy	Super Hyrando 32	Super Mulpus DX 32
Cosmo Oil	Cosmo Hydro AW32	Cosmo New Mighty Super 32
ExxonMobil	Mobil DTE 24	Mobil DTE 24 Light
Matsumura Oil	Hydol AW-32	
Castrol	Hyspin AWS 32	

Note As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.

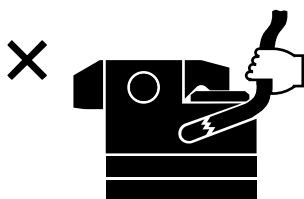
● Cautions

● Notes on Handling

- 1) Shutting down of the machine should be done without load applied to the clamp.
 - This can result in the dropping of a die.
 - When using it with a press machine, make sure to stop the slide at bottom dead point.
- 2) It should be handled by qualified personnel.
 - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
- 3) Do not handle or remove the machine unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
 - ② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic circuit.
 - ③ After stopping the machine, do not remove until the temperature cools down.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 4) Do not touch clamps while they are working.
 - Otherwise, your hands may be injured.



- 5) When changing the width of the die, make sure to check the allowable protrusion amount.
 - If using it with beyond allowable protrusion amount, excessive force is applied to the clamp which deforms or damages the clamp resulting in falling off of the die and accident or injury. Please refer to "Notes for Design (6)" on P.067 for the allowable protrusion amount.
- 6) Please hold the main body of the clamp when moving or removing it.
 - If pulling on hydraulic hose or air tube, the clamp will fall off leading to accident or injury. Also, rivet part of the hose will be loosened leading to fluid leakage.



- 7) Do not disassemble or modify it.
 - If the equipment is taken apart or modified, the warranty will be void even within the warranty period.
- 8) Please do not pour water / oil over the product.
 - It may lead to malfunction or deterioration of the product and cause an accident.



Clamp
Hydraulic Unit
Operation Control Panel
Die Lifter
Pre-Roller
Accessories
Cautions
Company Profile

Clamp
GA
GD
GBB
GBE
GBC
GBF
GBP
GBQ
GN

Hydraulic Unit
CP
CR
CPB
CPD
CPC
CPE
CQC
CQE

Pump Unit
CB
CD
CC

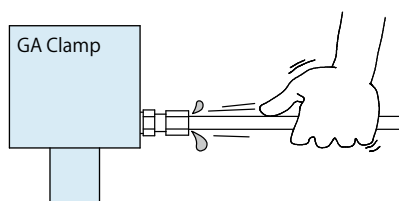
Valve Unit
BC
BH
MV

Operational Control Panel
YP
YA

Cautions

Installation Notes (Cautions for Hydraulic Series)

- 1) Check the fluid to use
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List.
 - If hydraulic oil with viscosity grade higher than ISO-VG-32 is used, action time would be longer.
 - If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.
- 2) Procedure before Piping
 - The pipeline, piping connector and fixture circuits should be cleaned by thorough flushing.
 - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
 - Our products except some valves are not equipped with protective function to prevent dust and cutting chips going into the hydraulic system and pipeline.
- 3) Applying Sealing Tape
 - Wrap with tape 1 to 2 times following the screwing direction.
 - Pieces of the sealing tape can lead to air leaks and malfunction.
 - In order to prevent a foreign substance from going into the product during piping, it should be carefully cleaned.
- 4) Air Bleeding in the Hydraulic Circuit
 - If the hydraulic circuit has excessive air, the action time may become very long.
After installing the hydraulic circuit, or if the pump run out of oil, be sure to bleed air by the following step.
 - ① Reduce hydraulic supply pressure to less than 2MPa.
 - ② Please loosen the cap nut of pipe fitting that is closest to clamps • RA die lifters by one full turn.
 - ③ Wiggle the pipeline to loosen the outlet of pipeline fitting.
The hydraulic fluid mixed with air comes out.



- ④ Tighten the cap nut after bleeding.
 - ⑤ It is more effective to bleed air at the highest point inside the circuit or at the end of the circuit.
- 5) Checking Looseness and Retightening
 - At the beginning of the machine installation, the bolt/nut may be tightened lightly.
Check torque and re-tighten as required.

Hydraulic Fluid List

ISO Viscosity Grade ISO-VG-32		
Maker	Anti-Wear Hydraulic Oil	Multi-Purpose Hydraulic Oil
Showa Shell Sekiyu	Tellus S2 M 32	Morlina S2 B 32
Idemitsu Kosan	Daphne Hydraulic Fluid 32	Daphne Super Multi Oil 32
JX Nippon Oil & Energy	Super Hyrando 32	Super Mulpus DX 32
Cosmo Oil	Cosmo Hydro AW32	Cosmo New Mighty Super 32
ExxonMobil	Mobil DTE 24	Mobil DTE 24 Light
Matsumura Oil	Hydol AW-32	
Castrol	Hyspin AWS 32	

Note : As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.

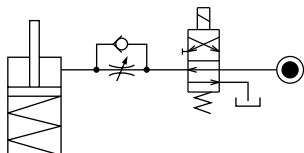
Notes on Hydraulic Cylinder Speed Control Unit



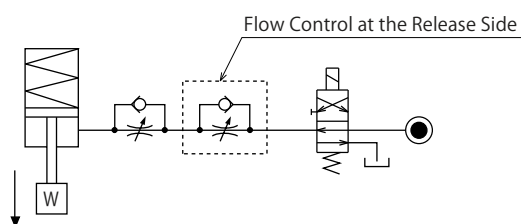
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

Flow Control Circuit for Single Acting Cylinder

For spring return single acting cylinders, restricting flow during release can extremely slow down or disrupt release action. The preferred method is to control the flow during the lock action using a valve that has free-flow in the release direction. It is also preferred to provide a flow control valve at each actuator.



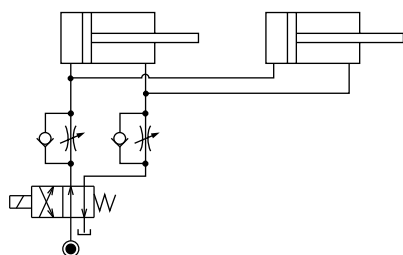
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow.



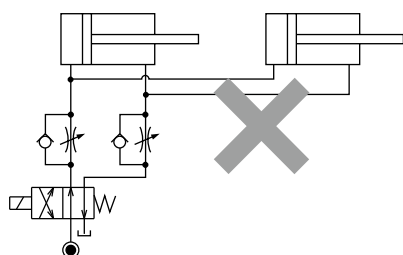
Flow Control Circuit for Double Acting Cylinder

Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system.

【Meter-out Circuit】

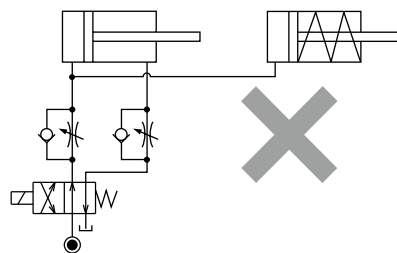


【Meter-in Circuit】



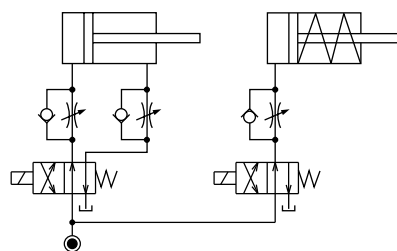
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

- ① Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.

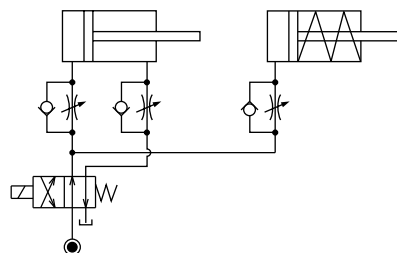


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

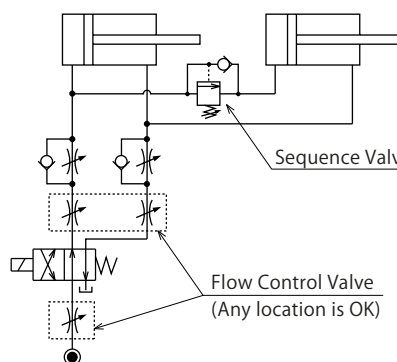
- Separate the control circuit.



- Reduce the influence of double acting cylinder control unit. However, due to the back pressure in tank line, single action cylinder is activated after double action cylinder works.



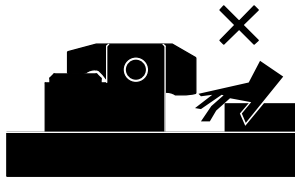
- ② In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve or pressure switches for clamping detection. If the back pressure is more than the set pressure then the system will not work as it is designed to.



● Cautions

● Notes on Handling

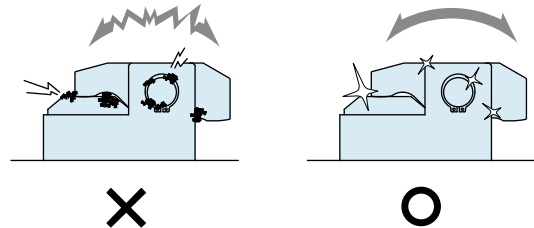
- 1) It should be handled by qualified personnel.
- The hydraulic machine / air compressor should be handled and maintained by qualified personnel.
- 2) Do not handle or remove the machine unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
 - ② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
 - ③ After stopping the machine, do not remove until the temperature cools down.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not touch clamps (cylinders) while they are working. Otherwise, your hands may be injured.



- 4) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance • Inspection

- 1) Removal of the Machine and Shut-off of Pressure Source
 - Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
 - Make sure there is no abnormality in the bolts and respective parts before restarting.
- 2) Regularly clean the area around the equipment.
 - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning , fluid leakage and air leaks.



- 3) If disconnecting by couplers on a regular basis, air bleeding should be carried out daily to avoid air mixed in the circuit.
- 4) Regularly tighten bolts and pipe line, mounting bolts, nuts, circlips and cylinders to ensure proper use.
- 5) Make sure the hydraulic fluid has not deteriorated.
- 6) Make sure there is smooth action and no abnormal noise.
 - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.
- 7) The products should be stored in the cool and dark place without direct sunshine or moisture.
- 8) Please contact us for overhaul and repair.

Cautions

Installation Notes
(For Hydraulic Series)

Hydraulic Fluid List

Notes on Hydraulic Cylinder
Speed Control Unit

Notes on Handling

Maintenance / Inspection

Warranty

Company Profile

Company Profile

Our Products

History

Sales Office

● Warranty

1) Warranty Period

- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.
Defects or failures caused by the following are not covered.

- ① If the stipulated maintenance and inspection are not carried out.
- ② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
- ③ If it is used or handled in inappropriate way by the operator.
(Including damage caused by the misconduct of the third party.)
- ④ If the defect is caused by reasons other than our responsibility.
- ⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
- ⑥ Other caused by natural disasters or calamities not attributable to our company.
- ⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.

Sales Offices

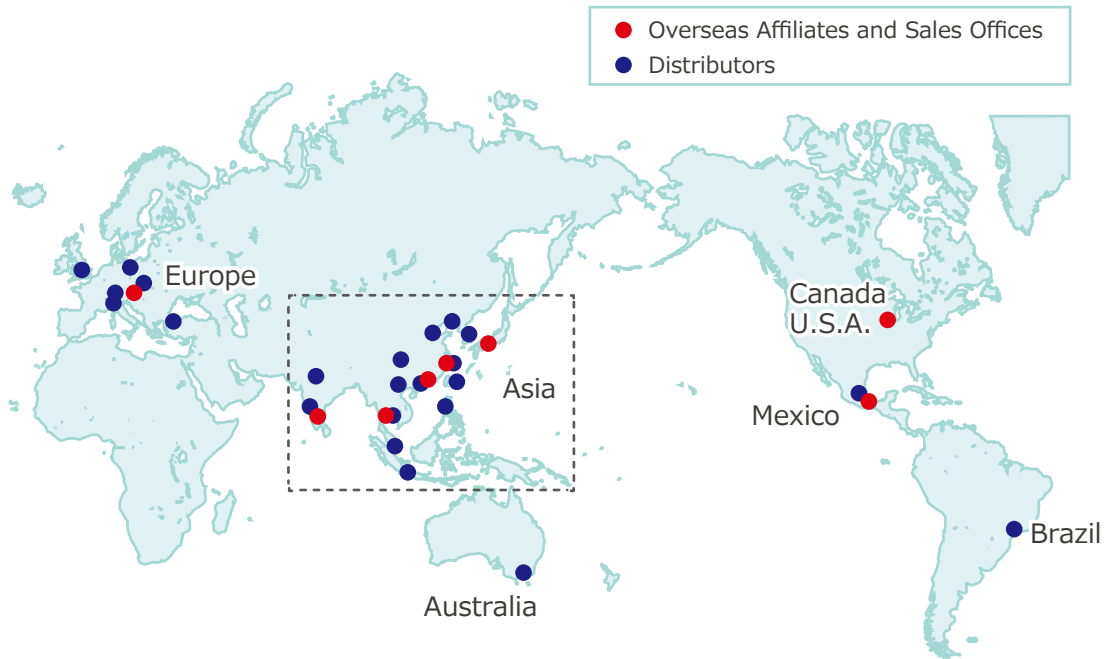
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Global Network



Asia Detailed Map



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