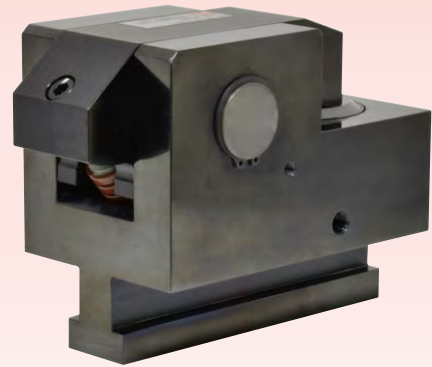


Hydraulic Lever Clamp

Longer Stroke / T-Slot Manual-Slide

Model GBC



**Longer stroke
allows for variation in die clamping thicknesses.**

Single-acting clamp function simplifies circuit structure.
We offer a wide range of options to meet your needs.

● Advantage

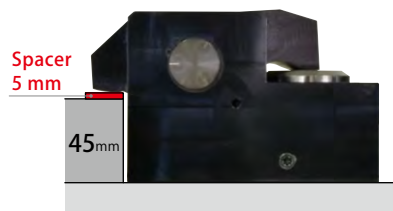
Standard Clamp

Requires a spacer at the die clamping site in order to standardize the thickness.

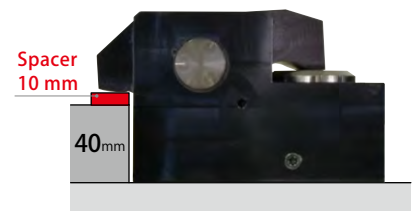
Clamping Thickness : 50mm



Clamping Thickness : 45mm



Clamping Thickness : 40mm



GBC Clamp

Is able to clamp dies with a thickness variance up to 10 mm.

There is no need to install spacers and no accidents caused by incorrect spacer thickness.

Clamping Thickness : 50mm



Clamping Thickness : 45mm



Clamping Thickness : 40mm



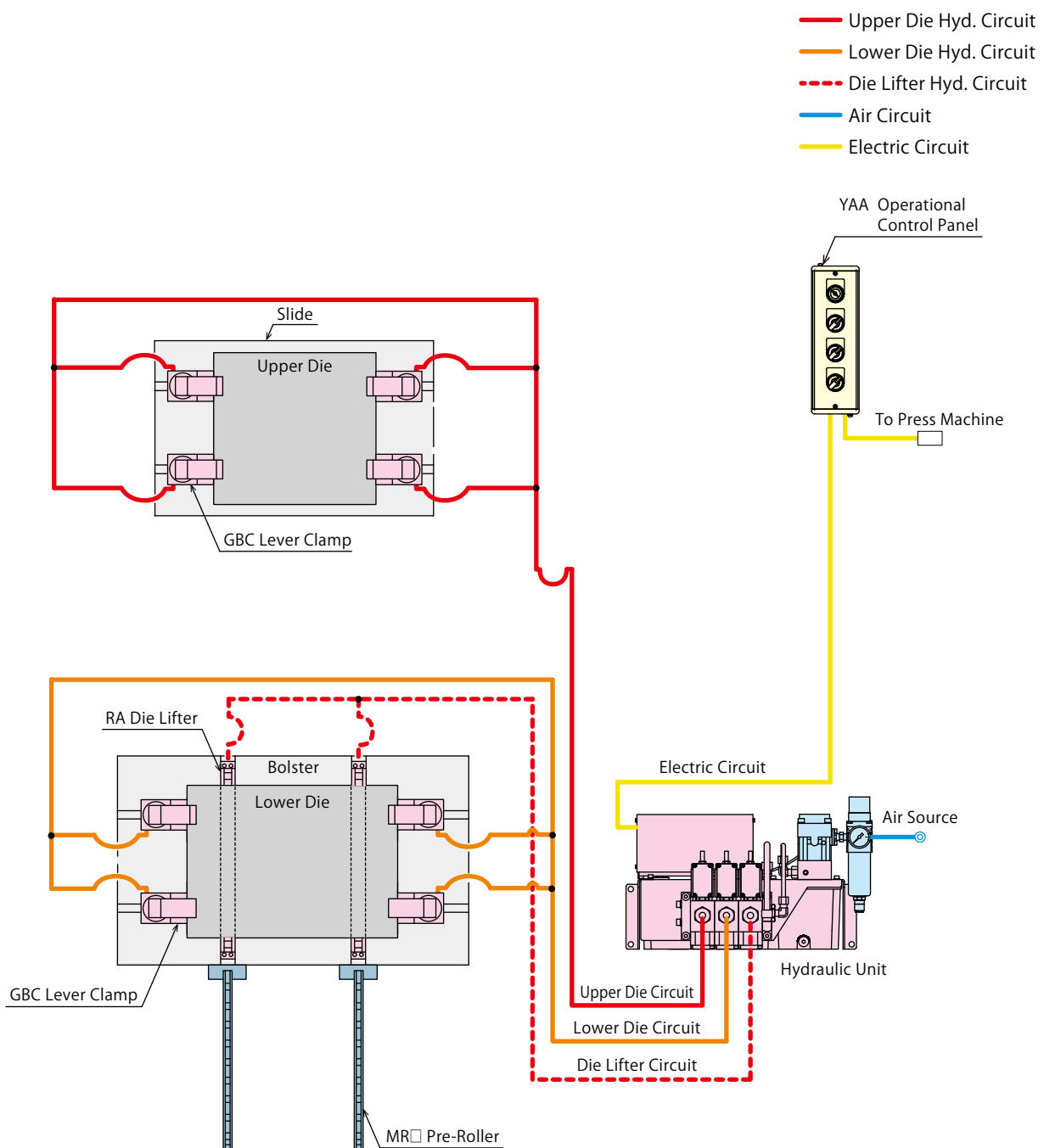
- Notes : 1. We provide GBC clamp according to the die clamping thickness and T-slot dimensions.
Please refer to the external dimensions for further information.
2. Variance in die clamping thickness varies depending on the clamp size.

System Structure Example

The basic structure with GBC 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 : GBC Lever Clamp
 Lower Clamp : GBC Lever 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 • Unit
Operational
Control Panel

Die Lifter
Pre-Roller

Accessories

Cautions
Company Profile

Clamp

GA
GD
GBB
GBC
GBE
GBF
GBP
GBQ
GN
GHA

Hydraulic Unit

CP
CR
CPB
CPD
CPC
CPE
CQC
CQE

Pump Unit

CB
CD
CC

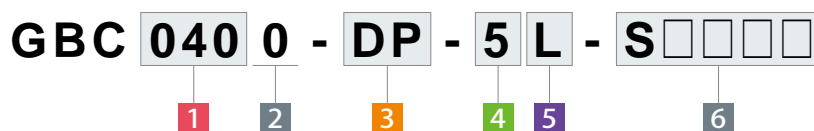
Valve Unit

BC
BH
MV

Operational Control Panel

YP
YAA

Model No. Indication



1 Clamping Force

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

2 Design No.

0 : Revision Number

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

Blank : Standard

A : Slide Rod (For U-Cut)

B : Slide Rod (For Tap)

D : With Handle (GBC0630 or larger)

E : Reinforced Body

F□ : Lever Spacer ※1

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.) ※1

K : Rear Port

L□ : Wide Lever (For U-Cut of Die) ※1 ※2

N : NPT Port ※3

P : With Die Confirmation Proximity Switch (GBC0250 or larger) ※5

R : Longer T-Leg Dimension D

T : T-Slot Locking

U□ : With Grease Nipple (GBC0400 or larger)

V : High Temperature (0 ~ 120°C) ※4

W : With Check Valve (GBC1000 or larger)

X : With Cover

Notes : ※1. Cannot be combined with the low lever and the wide lever models. Please contact us for further information.
 ※2. Please indicate the U-cut dimensions of the die.
 ※3. Dimensions in the specification sheet and other documents are in inches.
 ※4. 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) ※5. Only when selecting P (With Die Confirmation Proximity Switch).

1 : AC100V

2 : AC200V

5 : DC24V (5 ~ 40mA)

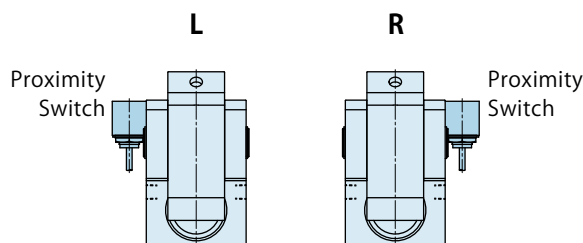
5 Switch Mounting Position ※5. Only when selecting P (With Die Confirmation Proximity Switch).

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 specifications of the clamp such as the T-leg dimensions of the clamp and the die clamping thickness. After the specification is confirmed, we will create a number.

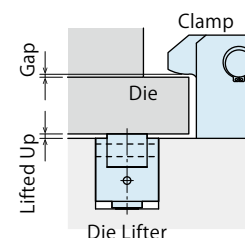


Specifications

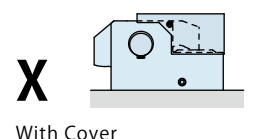
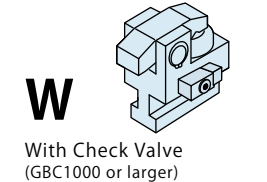
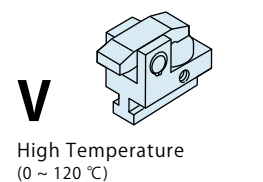
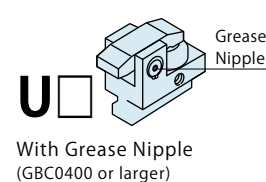
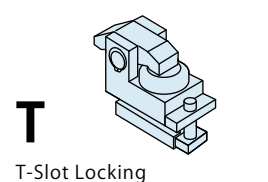
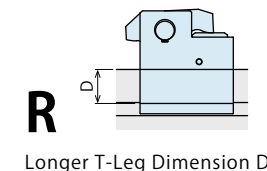
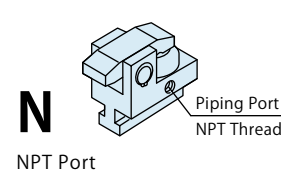
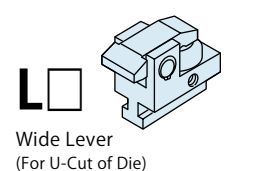
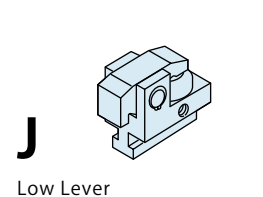
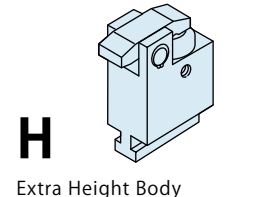
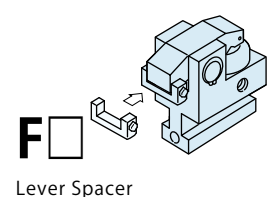
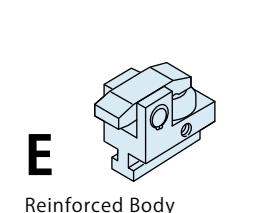
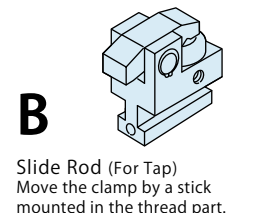
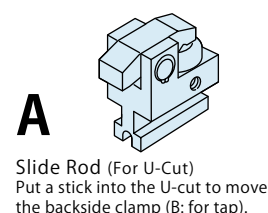
Model No.		GBC0100	GBC0160	GBC0250	GBC0400	GBC0630	GBC1000	GBC1600	GBC2500
Clamping Force	kN	10	16	25	40	63	100	160	250
Working Pressure	MPa	25 (For Rated Clamping Force)							
Withstanding Pressure	MPa	37							
Full Stroke	mm	8	9	10	12	15	15.5	16	16
Clamp Stroke ^{※6}	mm	0.5	1	1.5	3.5	1	1.5	2	2
Extra Stroke	mm	7.5	8	8.5	8.5	14	14	14	14
Applicable Die Clamping Thickness Variation	mm	5	5	5	5	10	10	10	10
Cylinder Capacity (At Full Stroke) cm ³		4	6	10	19	38	63	105	160
Operating Temperature ^{※7} °C		0 ~ 70 (V: High temperature option is available for 0 ~ 120°C)							
Use Frequency ^{※8}		20 Cycles / Day or less							
Usable Fluid ^{※9 ※10 ※11}		General Hydraulic Oil Equivalent to ISO-VG-32							
Min. T-Slot Width a (JIS) ^{※12} mm		10	12	14	18	22	24	28	36
Max. T-Slot Width a (JIS) ^{※12} mm		20	24	32	42	42	54	54	54

Notes :

- ※6. For using GBC Clamp with Die Lifter, make sure there is a gap between the die and the clamp when Die Lifter is lifted up.
- ※7. Option **V** : High Temperature (0 ~ 120°C) is for operating in temperatures of 70°C or more.
- ※8. Please contact us for more frequent use.
- ※9. Please contact us for fluids other than those mentioned on the list.
- ※10. If hydraulic viscosity is higher than specified, action time will be longer.
- ※11. If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.
- ※12. It shows reference dimensions. The dimension may differ from the list depending on T-slot (T-leg) dimension, dimension of clamp cylinder that sticks out of T-slot during lock action, body material and others.



Options



Note :

1. Specifications and external dimensions for these options are different from the standard model. Please contact us for further information.

Clamp • Unit
Operational
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Die Lifter
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Accessories

Cautions
Company Profile

Clamp

GA

GD

GBB

GBC

GBE

GBF

GBP

GBQ

GN

GHA

Hydraulic Unit

CP

CR

CPB

CPD

CPC

CPE

CQC

CQE

Pump Unit

CB

CD

CC

Valve Unit

BC

BH

MV

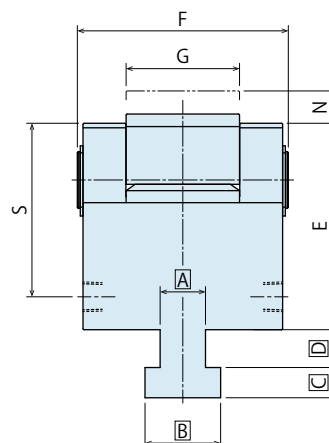
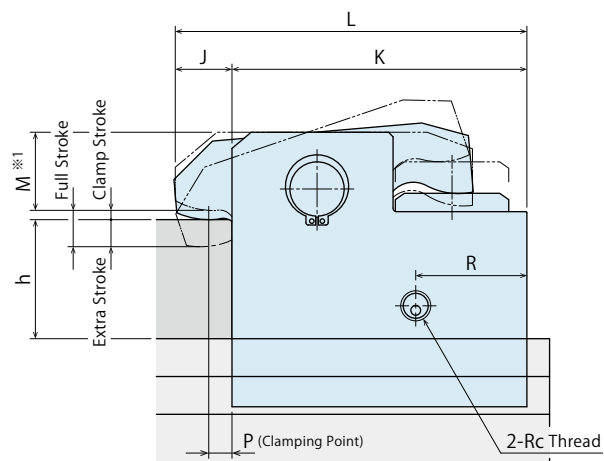
Operational Control Panel

YP

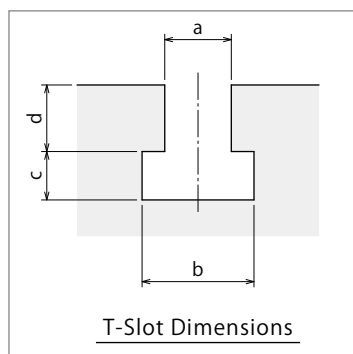
YAA

External Dimensions : GBC0100 ~ GBC2500

※ This drawing shows the standard model of GBC0100 ~ GBC2500.
Contact us for external dimensions for options.



T-Slot Dimensions



Notes :

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

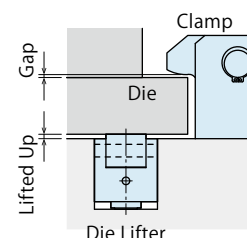
External Dimension List

(mm)

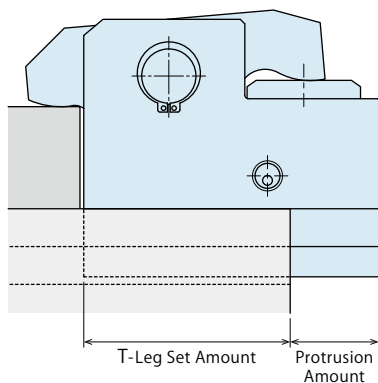
Model No.	GBC0100	GBC0160	GBC0250	GBC0400	GBC0630	GBC1000	GBC1600	GBC2500
Full Stroke	8	9	10	12	15	15.5	16	16
Clamp Stroke ※2	0.5	1	1.5	3.5	1	1.5	2	2
Extra Stroke	7.5	8	8.5	8.5	14	14	14	14
Applicable Die Clamping Thickness Variation	5	5	5	5	10	10	10	10
min. E	45.5	52	62	71	88.5	114	132.5	154.5
F	43	53	63	73	93	103	124	152
G	20	26	32	38	50	53	60	73
J	15	17	19	22	25	30	30	30
K	58	70	84	105.5	130	159	199	240
L	73	87	103	127.5	155	189	229	270
N	8	9	9.5	11	14.5	15	18	19
P ※3	6	8	8	10	10	10	10	10
R	27	27	37	42	49	68	73	69.5
S	36.5	43	50	59	76.5	102	118.5	137.5
Rc	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc1/4	Rc1/4	Rc1/4	Rc1/4
min. h	20 ~ 25	20 ~ 25	25 ~ 30	25 ~ 30	30 ~ 40	40 ~ 50	40 ~ 50	45 ~ 55
max. h	35 ~ 40	35 ~ 40	45 ~ 50	45 ~ 50	50 ~ 60	60 ~ 70	70 ~ 80	70 ~ 80
Weight ※4 kg	0.8	1.4	2.4	4	8	14	24	42

Notes :

- ※1. Dimension M (Lever Thickness) in the drawing varies depending on variation in dimension h (Die Clamping Thickness). Please contact us for further information.
- ※2. For using GBC Clamp with Die Lifter, make sure there is a gap between the die and the clamp when Die Lifter is lifted up.
- ※3. Dimension P (Clamping Point) indicates when the dimension h (Die Clamping Thickness) is thick.
- ※4. It indicates the weight in case of min. E.
 - If you would like to change the ratio of clamp stroke and extra stroke, please contact us.
 - Dimensions **A**, **B**, **C** and **D** are determined by Kosmek according to the T-slot dimensions.
 - When making an order, please indicate T-slot dimensions a, b, c, d and die clamping thickness h (including variation).
 - Please indicate the dimensions a, b, c, d and h in 0.1mm increments.



GBC Clamp The Allowable Protrusion Amount of Cylinder

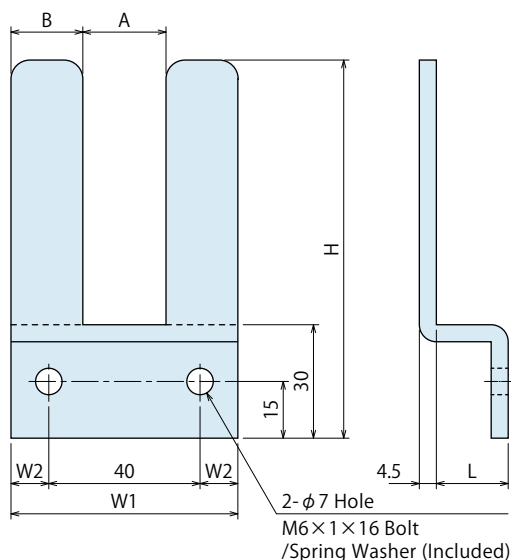


Model No.	Min. T-Leg Set Amount	Allowable Protrusion Amount
GBC0100	40.5	17.5
GBC0160	49.0	21.0
GBC0250	59.0	25.0
GBC0400	73.5	32.0
GBC0630	91.0	39.0
GBC1000	114.0	45.0
GBC1600	142.0	57.0
GBC2500	170.5	69.5

Note :

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

Accessory : GBH Clamp Hook

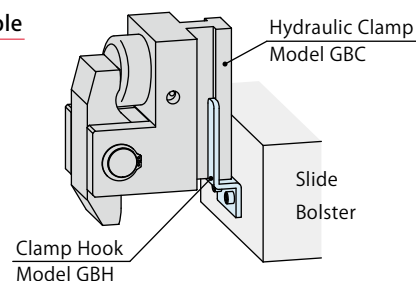


Model No.	GBH181	GBH221	GBH281
A	18	22	28
B	21	19	21
H	100	100	110
L	19	19	25
W1	60	60	70
W2	10	10	15

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 • Unit
Operational
Control Panel

Die Lifter
Pre-Roller

Accessories

Cautions
Company Profile

Clamp

GA

GD

GBB

GBC

GBE

GBF

GBP

GBQ

GN

GHA

Hydraulic Unit

CP

CR

CPB

CPD

CPC

CPE

CQC

CQE

Pump Unit

CB

CD

CC

Valve Unit

BC

BH

MV

Operational
Control Panel

YP

YAA

Cautions

Notes for Design

1) Check Specifications

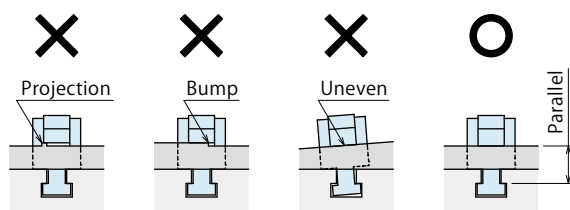
- Please use each product according to its specifications.
- Operating pressure is 25MPa.
[In case of GN Clamp] Locking Hydraulic Pressure : 25MPa
Releasing Air Pressure : 0.4 ~ 0.5MPa
Do not exceed the specified operating hydraulic pressure.
Failure to do so may result in damage on the product, falling of a die and an injury. When required to reduce clamping force, use the product with lower operating pressure.

2) Check Die Clamping Thickness

- Please check the die clamping thickness.
Die clamping thickness of GN/GHA clamp should be $h \pm 0.5\text{mm}$.
Using dies other than specified causes locking malfunction of die clamp leading to falling of a die and an injury.

3) Clamping surface and T-slot must be parallel with die mounting surface.

- If a clamping surface is not even or parallel, excessive force will be applied to the clamp, deforming the clamp body and lever. This causes an accident and an injury.



4) Make sure that advance and retract actions of a clamp are smoothly conducted. (Model GD / GBE / GBF)

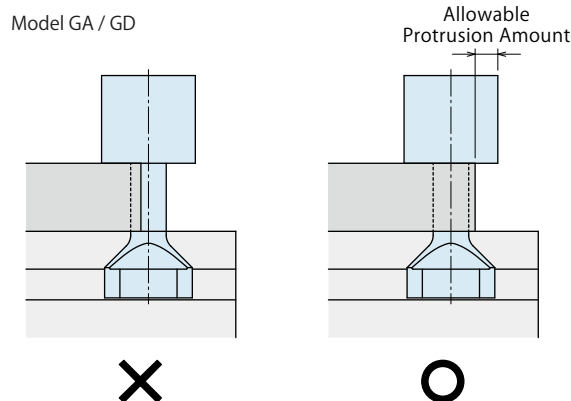
- Please control air cylinder for slide with 2-position double solenoid (with detent).
- Supply 0.4MPa or more air pressure to an air cylinder.
- Please adjust the moving speed of a clamp with a speed controller to be fully stroked within 1 to 2 seconds.
- Do not set the proximity switch to a die surface near 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 a clamp.

- Otherwise, the 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.

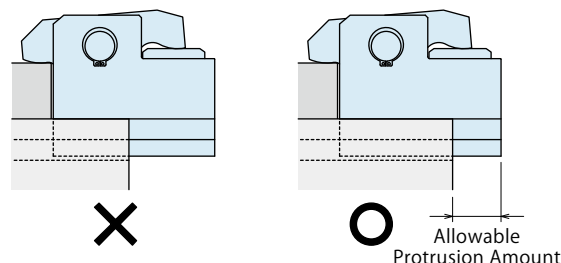
- U-Cut of the Die . . . Model GA / GD
- T-Slot of the Slider / Bolster . . . Model GBB / GBE / GBC / GBF



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 / GBC / GBE / GBF

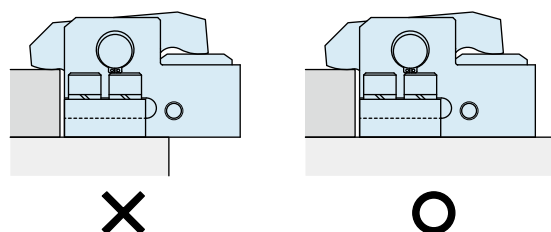


Allowable Protrusion Amount

Model No.	Allowable Protrusion Amount (mm)
GBB0100 / GBC0100	17.5
GBB0160 / GBC0160	21
GBB0250 / GBC0250 / GBE0250 / GBF0250	25
GBB0400 / GBC0400 / GBE0400 / GBF0400	32
GBB0630 / GBC0630 / GBE0630 / GBF0630	39
GBB1000 / GBC1000 / GBE1000 / GBF1000	45
GBB1600 / GBC1600 / GBE1600 / GBF1600	57
GBB2500 / GBC2500 / GBE2500 / GBF2500	69.5

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

- Make sure that the clamp body is set within the mounting surface. Otherwise, an excessive force will be applied to the clamp and it deforms the clamp or damages mounting bolt resulting in falling off of a die and an accident or an injury.



● Installation Notes

1) Check the Usable Fluid

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

2) Procedure before Piping

- Pipelines, piping connectors and others should be cleaned by thorough flushing.
- Dust and cutting chips in the circuit may lead to fluid leakage and malfunction. (There is no filter that prevents contamination.)

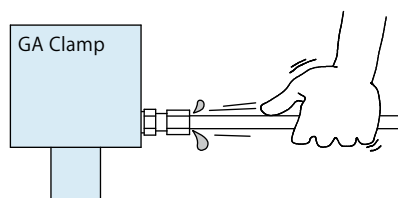
3) Applying Sealing Tape

- Wrap with tape 1 to 2 times following the screw direction.
- Pieces of the sealing tape can lead to oil leakage and malfunction.
- Please implement piping construction in a clear environment to prevent anything getting in products.

4) Air Bleeding of 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 perform the following steps.

- ① Reduce hydraulic pressure to less than 2MPa.
 - ② Loosen the cap nut of pipe fitting closest to the clamp • RQA/RA die lifter by one full turn.
 - ③ Shake the pipeline to loosen the outlet of pipe fitting.
- Hydraulic fluid mixed with air comes out.



- ④ Tighten the cap nut after bleeding.
 - ⑤ It is more effective to release 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 and nut may be tightened lightly. Check the looseness and re-tighten as required.

6) Installation of the Product

- After setting the clamp in the T-slot, use hexagonal socket bolts and tighten them with the following torque. (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

- Use hexagonal socket bolts and tighten them with the following torque. (Model GBP / GBQ / GN / GHA)

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

Model No.	Thread Size	Tightening Torque (N·m)
GHA0250	M8×1.25	25
GHA0400	M8×1.25	25
GHA0630	M10×1.5	50

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

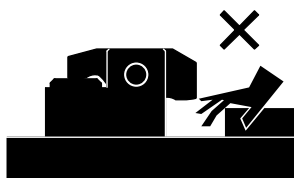
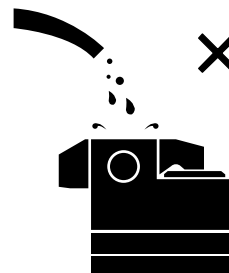
Maker	ISO Viscosity Grade ISO-VG-32	
	Anti-Wear Hydraulic Oil	Multi-Purpose Hydraulic Oil
Showa Shell Sekiyu	Tellus S2 M 32	Morlina S2 B 32
Idemitsu Kosan	Daphne Hydraulic Fluid 32	Daphne Super Multi Oil 32
JX Nippon Oil & Energy	Super Hyrando 32	Super Mulpus DX 32
Cosmo Oil	Cosmo Hydro AW32	Cosmo New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

Note : Please contact manufacturers when customers require products in the list above.

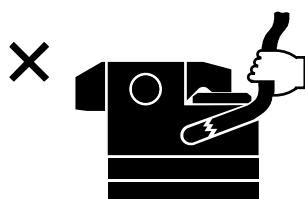
● Cautions

● Notes on Handling

- 1) Shutting down of the machine should be done without load applied to the clamp.
 - Failure to do so results in a die fall and an injury.
 - For press machine use, make sure to stop the slide at bottom dead point.
- 2) It should be operated by qualified personnel.
 - Hydraulic products, machines and devices should be operated and maintained by qualified personnel.
- 3) Do not operate or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
 - ② Before removing the product, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the hydraulic circuits.
 - ③ After stopping the product, do not remove until the temperature drops.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 4) Do not touch a clamp (cylinder) while it is working. Otherwise, your hands may be injured.
- 7) Do not disassemble or modify.
 - If the product is taken apart or modified, the warranty will be voided even within the warranty period.
- 8) Do not pour water or oil over the product.
 - Failure to do so causes malfunctions and deterioration of the product leading to an accident.



- 5) When changing a die width, 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.085 for the allowable protrusion amount.
- 6) Hold the clamp body when moving and removing the clamp.
 - Pulling on hydraulic hose or air tube leads to a clamp fall and an injury. Also, rivet part of the hose will be loosened leading to fluid leakage.



Clamp • Unit
Operational
Control Panel

Die Lifter
Pre-Roller

Accessories

Cautions
Company Profile

Clamp

GA

GD

GBB

GBC

GBE

GBF

GBP

GBQ

GN

GHA

Hydraulic Unit

CP

CR

CPB

CPD

CPC

CPE

CQC

CQE

Pump Unit

CB

CD

CC

Valve Unit

BC

BH

MV

Operational
Control Panel

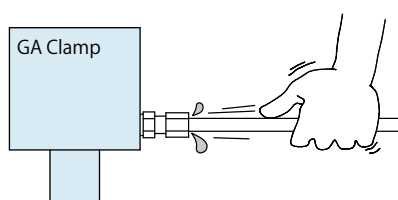
YP

YAA

Cautions

Installation Notes (Cautions for Hydraulic Series)

- 1) Check the Usable Fluid
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List.
 - If viscosity grade of hydraulic oil is higher than ISO-VG-32, action time becomes longer.
 - If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.
- 2) Procedure before Piping
 - Pipelines, piping connectors and others should be cleaned by thorough flushing.
 - 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 that prevents contamination.
- 3) Applying Sealing Tape
 - Wrap with tape 1 to 2 times following the screw direction.
 - Pieces of the sealing tape can lead to fluid leakage and malfunction.
 - Please implement piping construction in a clear environment to prevent anything getting in products.
- 4) Air Bleeding of 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 perform the following steps.
 - ① Reduce hydraulic pressure to less than 2MPa.
 - ② Loosen the cap nut of pipe fitting closest to the clamp, RQA/RA Die Lifter by one full turn.
 - ③ Shake the pipeline to loosen the outlet of pipe fitting.
Hydraulic fluid mixed with air comes out.



- ④ Tighten the cap nut after air bleeding.
 - ⑤ It is more effective to release 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 and nut may be tightened lightly. Check the looseness and re-tighten as required.

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 : Please contact manufacturers when customers require products in the list above.

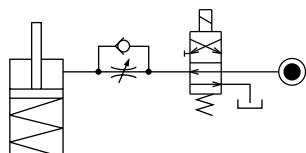
● Notes on Hydraulic Cylinder Speed Control Unit



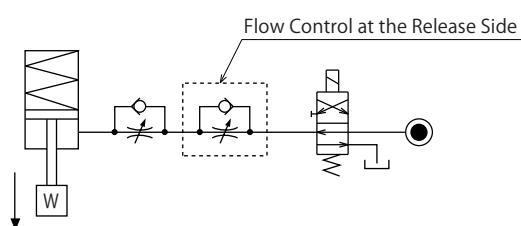
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

● 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.



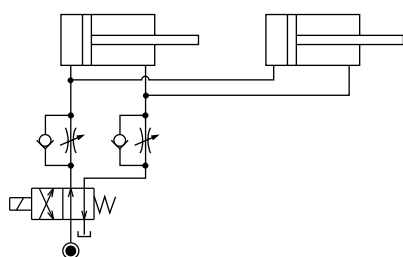
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow.



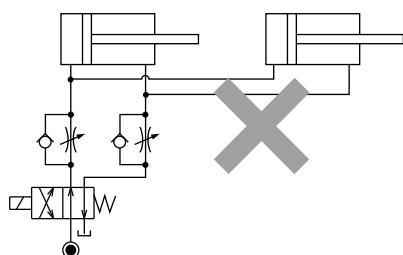
● Flow Control Circuit for Double-Acting Cylinder

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】

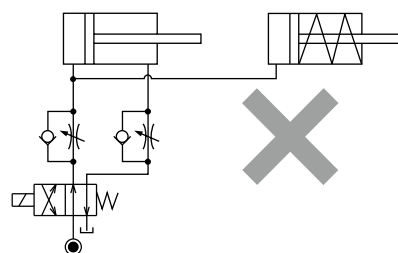


【Meter-in Circuit】



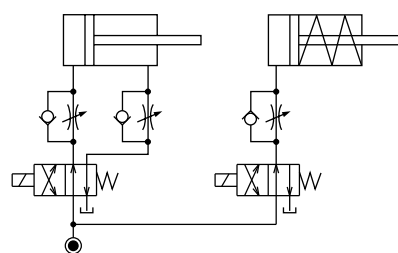
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

- 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.

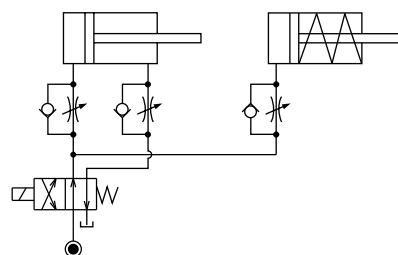


Refer to the following circuit when both the single-acting cylinder and double-acting cylinder are used together.

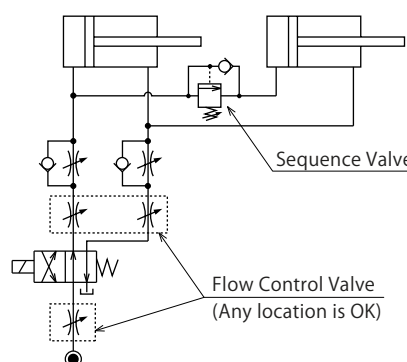
- Separate the control circuit.



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



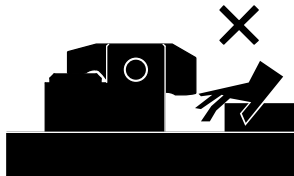
- ② In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve 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

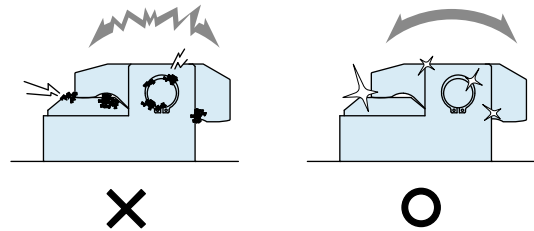
- 1) It should be operated by qualified personnel.
- Hydraulic products, machines and devices should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
 - ② Before the product is removed, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the hydraulic and air circuits.
 - ③ After stopping the product, do not remove until the temperature drops.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not touch a clamp (cylinder) while it is working. Otherwise, your hands may be injured.



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

● Maintenance • Inspection

- 1) Removal of the Product and Shut-off of Pressure Source
 - Before removing the product, make sure that safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
 - Make sure there is no abnormality in the bolts and respective parts before restarting.
- 2) Regularly clean the area around the product.
 - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning and fluid leakage.



- 3) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.
- 4) Regularly tighten bolts, pipe line, mounting bolt, nut, snap ring, cylinder and others to ensure proper use.
- 5) Make sure the hydraulic fluid has not deteriorated.
- 6) Make sure there is a smooth action without an irregular 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.

● 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 operated in an 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

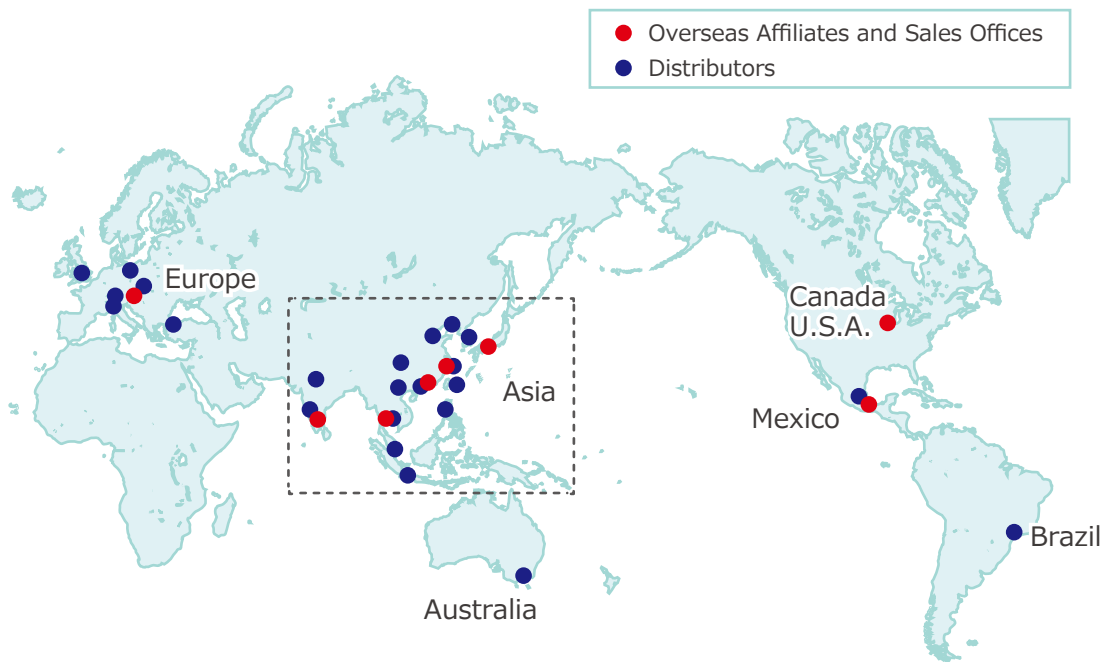
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Asia Detailed Map



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