

New

Hydraulic Ball Die Lifter



Model RQA



Quick Die Change Systems

Kosmek QDCS can effectively reduce die change time for press/stamping machines.

Automatic clamping systems replace manual bolt tightening.

Loading / Unloading dies is safe and easy with die lifters and pre-rollers.

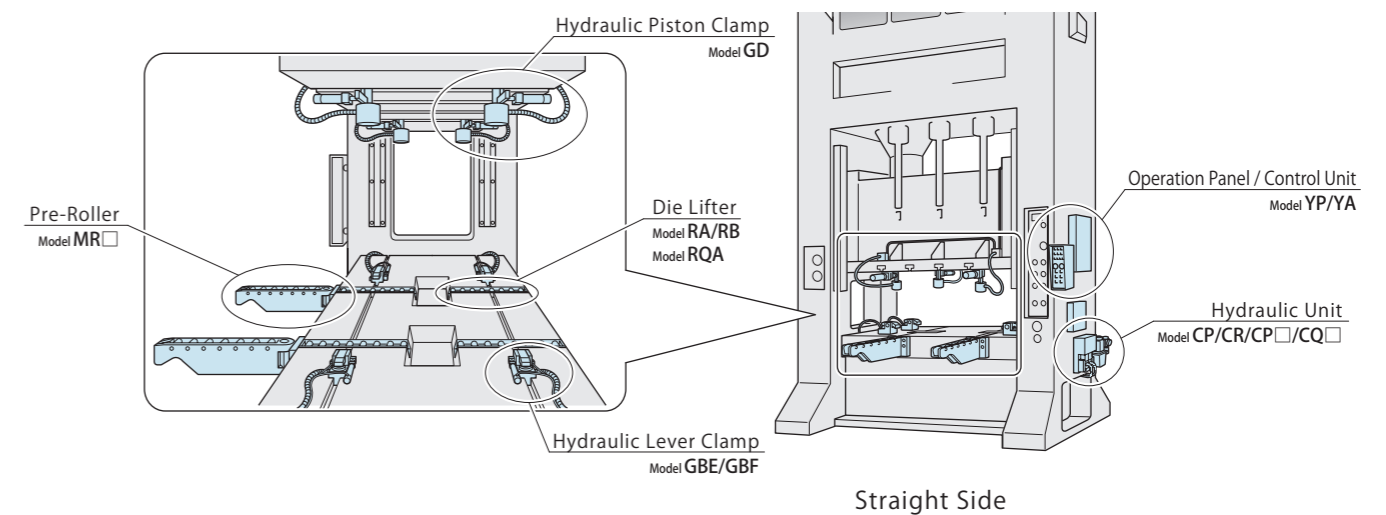
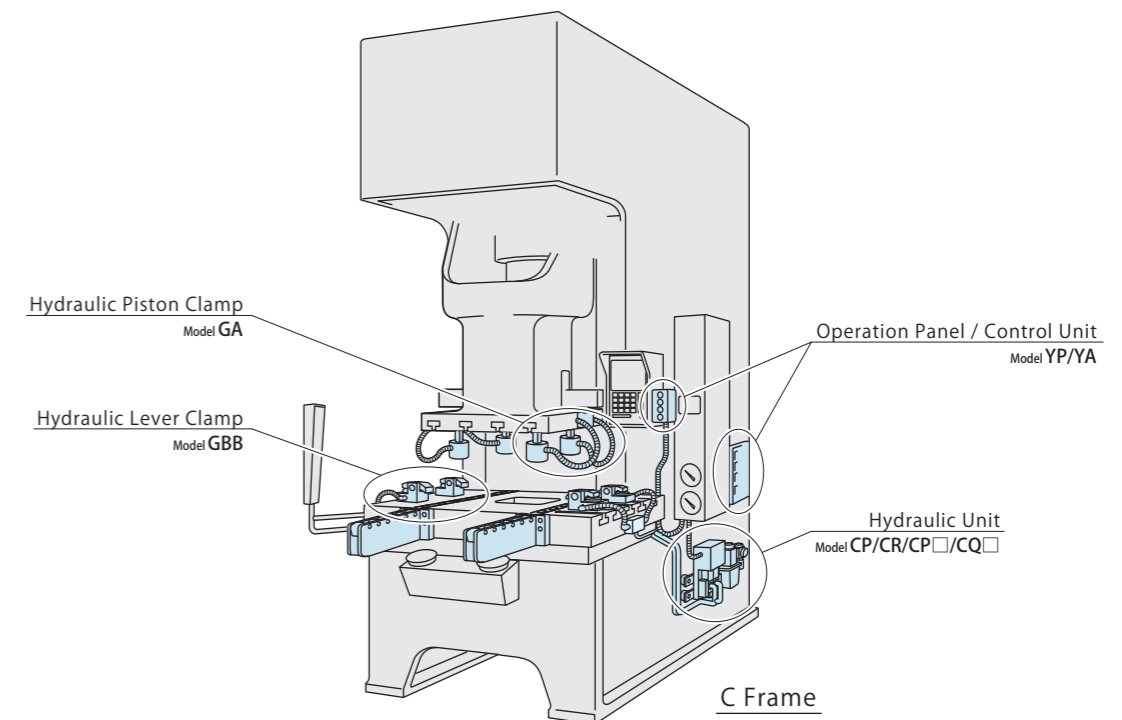
The operation panel has a user-friendly design. Interlock circuit helps preventing system error/malfunction and makes your workplace safer.



Our specialists will help you find the most suitable system. Please feel free to contact us.

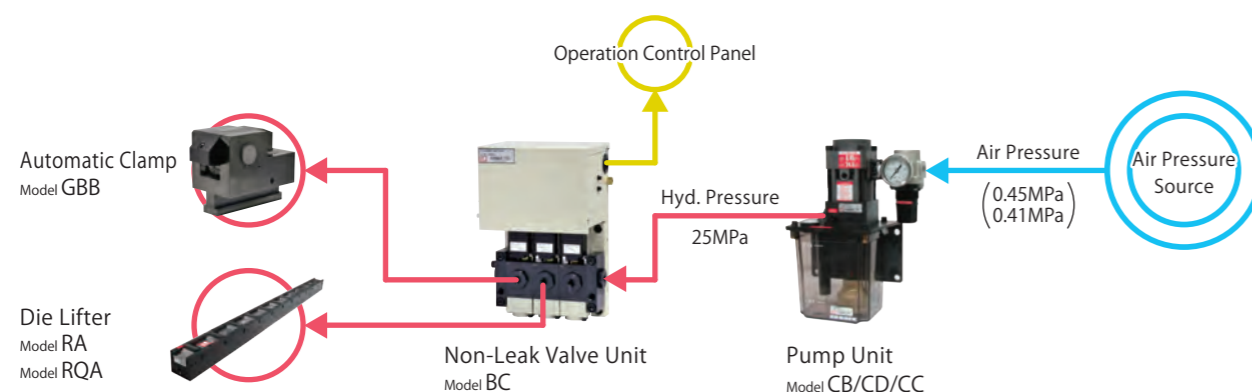
<http://www.kosmek.co.jp/english/>

We have various types of hydraulic and pneumatic products. Please let us know your requirements, and we will make it happen.



Supplying Hydraulic Pressure

The Kosmek pump unit easily generates hydraulic pressure using factory compressed air.



Quick Die Change System Complete Catalog

We have a variety of products related to quick die change system. For further information of other products, please order the complete catalog from our website (<http://www.kosmek.co.jp/english/>).

Quick Die Change System

Hydraulic Ball Die Lifter

Model RQA



Smooth Die Movement on the Bolster of Press Machine

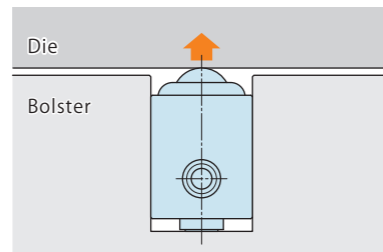
Able to move a die flexibly with light force.

LIFT UP HYD : SUPPLY

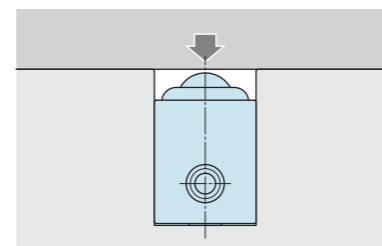
LIFT DOWN HYD : RELEASE

Lift and Move a Die with Light Force

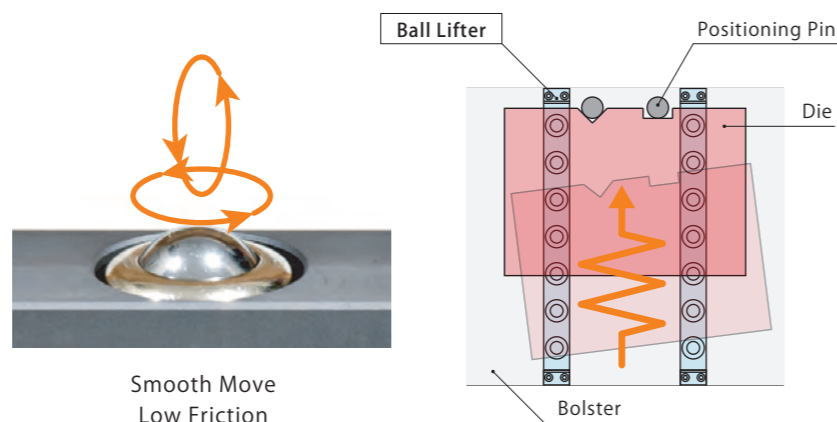
When loading/unloading a die, it is able to move the die smoothly by supplying hydraulic pressure.



During production, the die can be lowered to the bolster surface by stopping hydraulic supply.



The Ball Moves 360° Flexibly

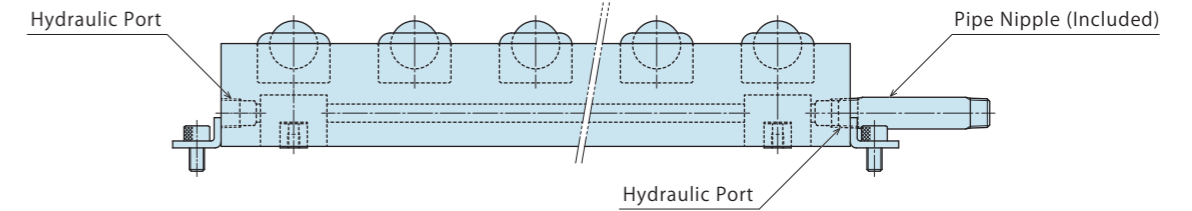


Smooth Move
Low Friction

Option ※ Please contact us for a combination of options.

D: Hydraulic Ports on Both Ends

When requiring a hydraulic ports on both ends.

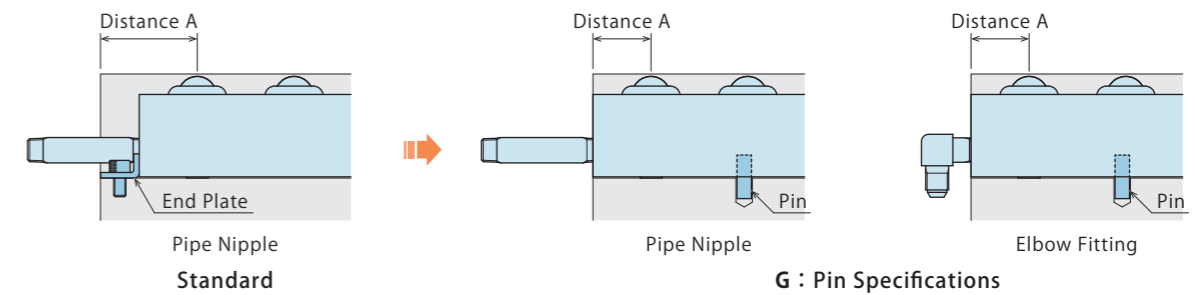


※ The size of two ports is common and the same as standard.

G: Pin Specifications

Fix the die lifter with the pin on the bottom.

- For shortening the distance A: from the end of a bolster or a scrap hole to the first roller.
- When not using the end plate in order to prevent contaminants from entering in the slot.



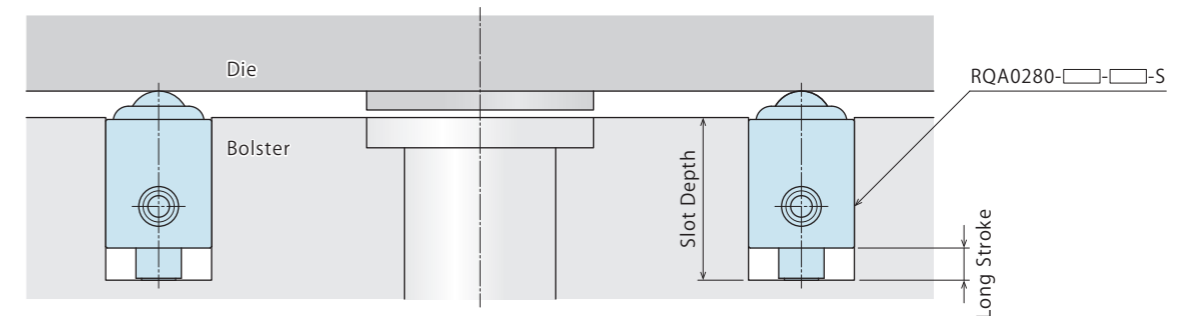
N: Hydraulic Port NPT Thread

In case of using NPT thread to a hydraulic port.

S: Long Stroke

In case of increasing lifting stroke because of fit part or projection between the bolster and die.

※ Please contact us for further information. (Applicable slot depth is different from the standard model.)



V: High Temperature (0 ~ 120°C)

For high temperature environment.

- Retractable die lifter option with accessory : RAT stopper is also available.



Please refer to Quick Die Change System complete catalog or visit our website (<http://www.kosmek.co.jp/english/>) for further information.

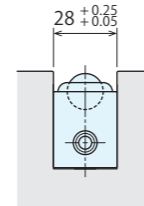
Model No. Indication

RQA **028** **0** - **600** - **P38** - **D**

1 2 3 4 5

1 Applicable Slot Width

028 : Applicable Slot Width 28 ^{+0.25}/_{+0.05} mm



2 Design No.

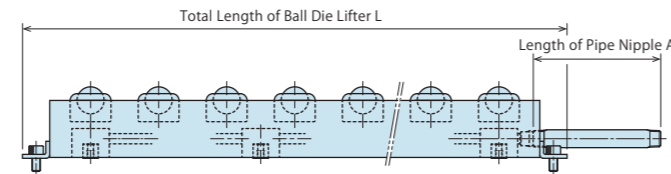
0 : Revision Number

3 Total Length of Ball Die Lifter L

Select it based on the external dimension list.

Blank ... Refer to page 5.

G: Pin Spec. ... Refer to page 6.



4 Length of Pipe Nipple A

Blank : Elbow Fitting (Only for **5** Option **G**: Pin Specification)

50 : Standard Length of Pipe Nipple 50mm

75 : Standard Length of Pipe Nipple 75mm

100 : Standard Length of Pipe Nipple 100mm

125 : Standard Length of Pipe Nipple 125mm

150 : Standard Length of Pipe Nipple 150mm

P 25 ~ 149 : Special Length of Pipe Nipple 25 ~ 149mm ^{※1}

E : No Pipe Nipple

Note :

※1. Special length of pipe nipple can be set within the range of 25 ~ 149mm in 1mm increments (except for the standard length of pipe nipple).

(Ex.) **50** : Length of pipe nipple is 50mm.

P49 : Length of pipe nipple is 49mm.

5 Option ※ Please contact us for specifications and external dimensions of options.

Blank : Standard

D : Hydraulic Port on Both Ends

G : Pin Specification ^{※2}

N : Hydraulic Port NPT Thread

S : Long Stroke ^{※3}

V : High Temperature (0 ~ 120°C)

Notes :

※2. In case of **5** Option **G** : Pin Specification, it is able to select

4 Length of Pipe Nipple **Blank** : Elbow Fitting.

If pipe nipple is required, select **4** Length of Pipe Nipple.

※3. In case of **5** Option **S** : Long Stroke, the applicable slot depth is different from the standard model.

Please contact us for further information.

Specifications

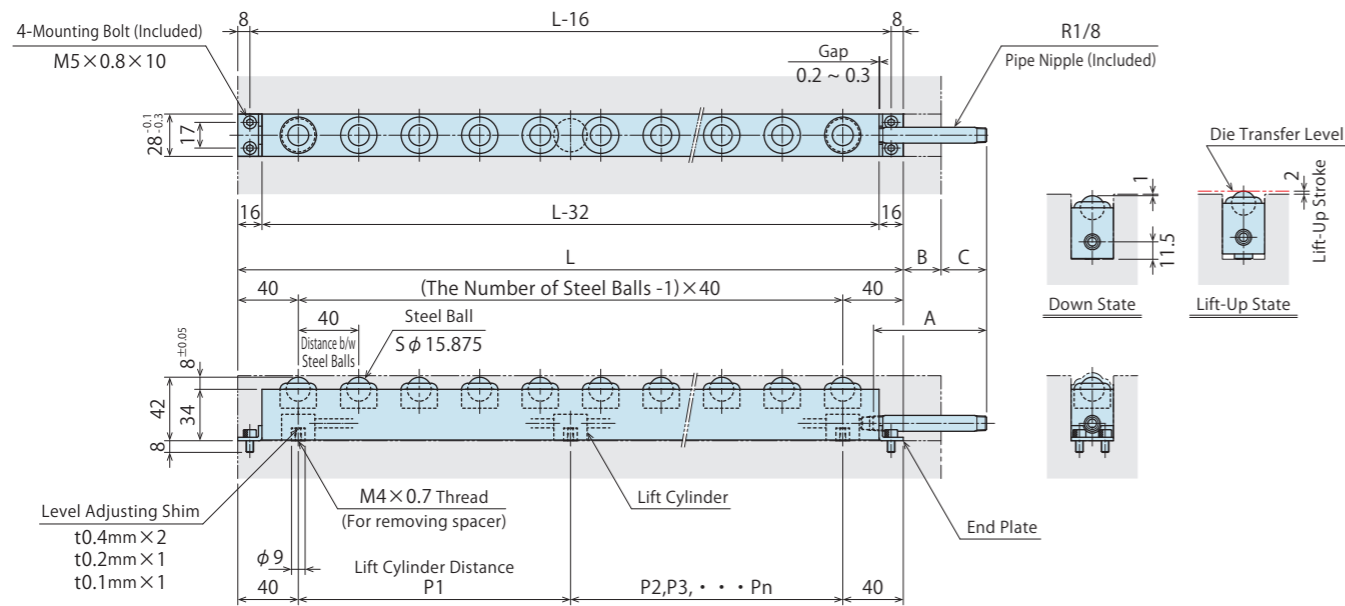
Model No.	RQA0280		
Applicable Slot Width	mm	28 ^{+0.25} / _{+0.05}	
Applicable Slot Depth	mm	43 ^{+0.5} / ₀	
Full Stroke	mm	3	
Lift-Up Stroke	mm	2	
Allowable Die Weight per Steel Ball ^{※4} ^{※5}	Die Material : SS400	kg	55
	Die Material : S45C • FC250	kg	70
Lifting Force (per Cylinder)	kN	5	
Lift Cylinder Capacity (per Cylinder)	cm ³	0.6	
Hydraulic Port		Rc1/8	
Operating Hydraulic Pressure	MPa	25	
Operating Temperature	°C	0 ~ 70 (V : High Temp. 0 ~ 120°C)	
Use Frequency		20 cycles or less / day	
Usable Fluid		General Hyd. Oil Equivalent to ISO-VG-32	

Notes :

※4. The number of steel balls and lift cylinders per ball die lifter varies depending on the total length of the ball die lifter. Please refer to each external dimension list for details.

※5. Allowable die weight is based on the hardness of bottom of die (contact surface of steel ball).

External Dimensions : RQA0280-□-□ (Standard) ※ This drawing shows the down state of the standard model of RQA0280.



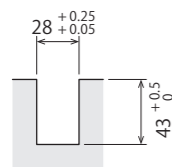
External Dimension List

Model No.	Total Length of Ball Die Lifter L (mm)	Weight (kg)	Number of Steel Balls	Allowable Die Weight (kg) ^{※1}		Lift Cylinder		Lift Cylinder Distance (mm)			
				Die Material ^{※2} SS400	S45C	Qty.	Lifting Force (kN)	P1	P2	P3	P4
RQA0280-200-□	200	1.3	4	220	280	2	10	120			
RQA0280-240-□	240	1.6	5	275	350	2	10	160			
RQA0280-280-□	280	1.9	6	330	420	2	10	200			
RQA0280-320-□	320	2.2	7	385	490	2	10	240			
RQA0280-360-□	360	2.5	8	440	560	2	10	280			
RQA0280-400-□	400	2.8	9	495	630	2	10	320			
RQA0280-440-□	440	3.1	10	550	700	3	15	180	180		
RQA0280-480-□	480	3.4	11	605	770	3	15	200	200		
RQA0280-520-□	520	3.7	12	660	840	3	15	220	220		
RQA0280-560-□	560	4.0	13	715	910	3	15	240	240		
RQA0280-600-□	600	4.2	14	770	980	3	15	260	260		
RQA0280-640-□	640	4.5	15	825	1050	3	15	280	280		
RQA0280-680-□	680	4.8	16	880	1120	3	15	300	300		
RQA0280-720-□	720	5.1	17	935	1190	3	15	320	320		
RQA0280-760-□	760	5.4	18	990	1260	4	20	225	230	225	
RQA0280-800-□	800	5.7	19	1045	1330	4	20	240	240	240	
RQA0280-840-□	840	6.0	20	1100	1400	4	20	250	260	250	
RQA0280-880-□	880	6.3	21	1155	1470	4	20	265	270	265	
RQA0280-920-□	920	6.6	22	1210	1540	4	20	280	280	280	
RQA0280-960-□	960	6.9	23	1265	1610	4	20	290	300	290	
RQA0280-1000-□	1000	7.2	24	1320	1680	4	20	305	310	305	
RQA0280-1040-□	1040	7.5	25	1375	1750	5	25	240	240	240	240
RQA0280-1080-□	1080	7.8	26	1430	1820	5	25	250	250	250	250
RQA0280-1120-□	1120	8.1	27	1485	1890	5	25	260	260	260	260
RQA0280-1160-□	1160	8.4	28	1540	1960	5	25	270	270	270	270
RQA0280-1200-□	1200	8.7	29	1595	2030	5	25	280	280	280	280

Notes :

- ※1. The allowable die weight is for when a die rests on all rollers.
- ※2. The allowable die weight of die material : FC250 is the same as S45C.

U-Slot Dimensions



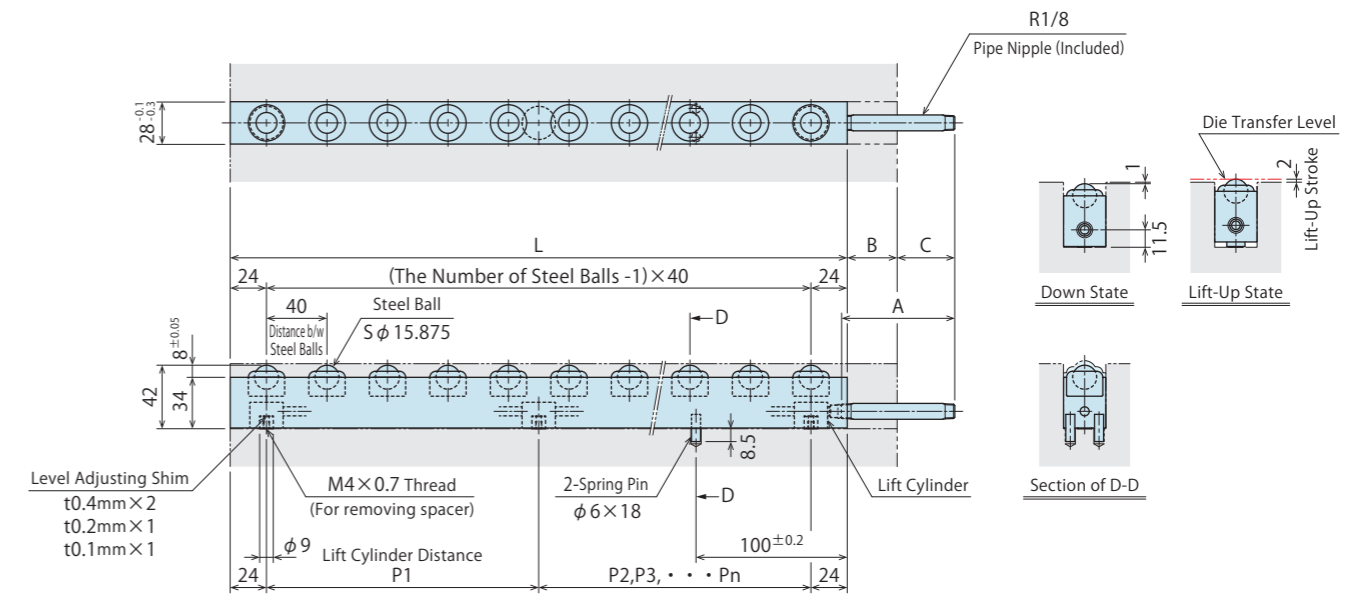
Projection of Pipe Nipple C^{※3}

Length of Pipe Nipple A	B	Projection on Pipe Nipple C ^{※3}
50	0 ~ 16	12 ~ 28
75	17 ~ 41	12 ~ 36
100	42 ~ 66	
125	67 ~ 91	
150	92 ~ 116	

Note :

- ※3. Tolerance of projection on pipe nipple C is ±1.5mm depending on screwing amount of R thread.
- Calculation Formula : C = A-B-22

External Dimensions : RQA0280-□-□-G (Pin Model) ※ This drawing shows the down state of the pin model of RQA0280.



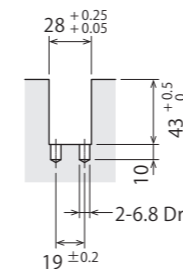
External Dimension List

Model No.	Total Length of Ball Die Lifter L (mm)	Weight (kg)	Number of Steel Balls	Allowable Die Weight (kg) ^{※1}		Lift Cylinder		Lift Cylinder Distance (mm)			
				Die Material ^{※2} SS400	S45C	Qty.	Lifting Force (kN)	P1	P2	P3	P4
RQA0280-168-□-G	168	1.3	4	220	280	2	10	120			
RQA0280-208-□-G	208	1.6	5	275	350	2	10	160			
RQA0280-248-□-G	248	1.9	6	330	420	2	10	200			
RQA0280-288-□-G	288	2.2	7	385	490	2	10	240			
RQA0280-328-□-G	328	2.5	8	440	560	2	10	280			
RQA0280-368-□-G	368	2.8	9	495	630	2	10	320			
RQA0280-408-□-G	408	3.1	10	550	700	3	15	180	180		
RQA0280-448-□-G	448	3.4	11	605	770	3	15	200	200		
RQA0280-488-□-G	488	3.7	12	660	840	3	15	220	220		
RQA0280-528-□-G	528	4.0	13	715	910	3	15	240	240		
RQA0280-568-□-G	568	4.2	14	770	980	3	15	260	260		
RQA0280-608-□-G	608	4.5	15	825	1050	3	15	280	280		
RQA0280-648-□-G	648	4.8	16	880	1120	3	15	300	300		
RQA0280-688-□-G	688	5.1	17	935	1190	3	15	320	320		
RQA0280-728-□-G	728	5.4	18	990	1260	4	20	225	230	225	
RQA0280-768-□-G	768	5.7	19	1045	1330	4	20	240	240	240	
RQA0280-808-□-G	808	6.0	20	1100	1400	4	20	250	260	250	
RQA0280-848-□-G	848	6.3	21	1155	1470	4	20	265	270	265	
RQA0280-888-□-G	888	6.6	22	1210	1540	4	20	280	280	280	
RQA0280-928-□-G	928	6.9	23	1265	1610	4	20	290	300	290	
RQA0280-968-□-G	968	7.2	24	1320	1680	4	20	305	310	305	
RQA0280-1008-□-G	1008	7.5	25	1375	1750	5	25	240	240	240	240
RQA0280-1048-□-G	1048	7.8	26	1430	1820	5	25	250	250	250	250
RQA0280-1088-□-G	1088	8.1	27	1485	1890	5	25	260	260	260	260
RQA0280-1128-□-G	1128	8.4	28	1540	1960	5	25	270	270	270	270
RQA0280-1168-□-G	1168	8.7	29	1595	2030	5	25	280	280	280	280

Notes :

- ※1. The allowable die weight is for when a die rests on all rollers.
- ※2. The allowable die weight of die material : FC250 is the same as S45C.

U-Slot Dimensions



Projection of Pipe Nipple C^{※3}

Length of Pipe Nipple A	B	Projection on Pipe Nipple C ^{※3}
50	0 ~ 32	12 ~ 44
75	33 ~ 57	12 ~ 36
100	58 ~ 82	
125	83 ~ 107	
150	108 ~ 132	

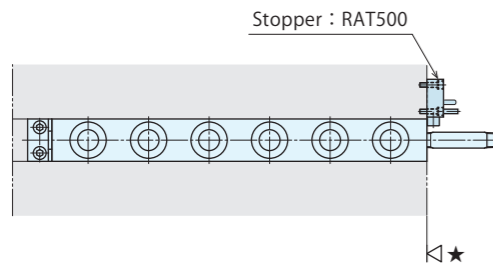
Note :

- ※3. Tolerance of projection on pipe nipple C is ±1.5mm depending on screwing amount of R thread.
- Calculation Formula : C = A-B-6

Cautions

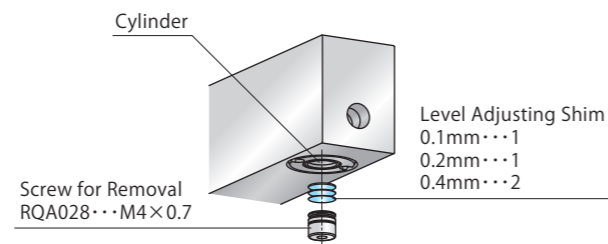
● Notes for Design

- 1) Check Specifications
 - Operating Pressure of RQA Ball Die Lifter is 25MPa.
 - Please use the product according to the specifications of RQA Ball Die Lifter.
- 2) Check Die Weight
 - Please use the product within the allowable die weight range. Excessive die weight causes damage on the bottom of the die and lifting failure.
- 3) Contact Surface of Die and Steel Balls
 - The die surface in contact with steel balls may be dented by tens of μm .
- 4) Check the positions of a scrap hole and cylinders.
 - If the bolster has a scrap hole, make sure that cylinders on the bottom of RQA Ball Die Lifter are not on the space of the scrap hole. If cylinders are on the scrap hole, RQA Ball Die Lifter will be damaged resulting in die fall and injury accident.
- 5) Using with Stopper (RAT500)
 - In case of using with stopper (RAT500), "◀★" part becomes the bolster end surface of RAT500 mounting side. The end plate of RAT500 mounting side is not required.



● Installation Notes

- 1) Check the Usable Fluid
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List.
- 2) Preparation for Piping
 - The pipeline, piping connector and fixture circuits should be cleaned by thorough flushing.
- 3) Use Hydraulic Hose for Piping
 - Please use a hydraulic hose since hydraulic connection port lifts up and down.
- 4) Please keep clear condition at steel ball surface.
 - If contaminants get inside, rolling motion will be disturbed.
- 5) Level Adjustment
 - Set RQA Ball Die Lifter into U-slot (T-slot) and set the level according to dimensions when lifting up and down. Refer to the external dimensions for U-slot (T-slot) dimensions and setting of level adjustment. If the level is not set, the load may be applied unevenly, which could damage the die and RQA Ball Die Lifter. Use the level adjusting shims to set the roller level of RQA.



6) Air Bleeding of the Hydraulic Circuit

- If the hydraulic circuit has excessive air, the lifting time may become very long, or cause continuous idling of the pump. If air enters the circuit after connecting the hydraulic port or under the condition of no air in the oil tank, please release the air at the end of piping.

● 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 Handling

- 1) The product should be operated 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 air and hydraulic circuits.
 - ③ After stopping the product, do not remove until the temperature drops.
 - ④ Make sure there is no trouble/issue in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.
- 4) Do not touch the product while it is working.
 - Otherwise, your hands may be injured.



- 5) Hold the RQA Ball Die Lifter itself when Moving or Removing
 - If pulling on the hose, RQA Ball Die Lifter may fall off leading to accident. Also, rivet part of the hose will be loosened leading to fluid leakage.



- 6) Do not pour water or oil over the product.
 - It may lead to malfunction or deterioration of the product causing an accident.



● Maintenance / Inspection

- 1) Removal of Product
 - Before the product is removed, make sure that safety devices and preventive devices are in place.
 - Make sure there is no trouble/issue in the bolts and respective parts before restarting.
- 2) Make sure that the steel balls move smoothly and do not make noises.
- 3) Please contact us for overhaul and repairs.
- 4) Regularly tighten pipe lines to ensure proper use.
- 5) Regularly check that the supply hydraulic pressure is in the range of the operating pressure.
- 6) Make sure hydraulic fluid is not deteriorated.
- 7) 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.
- 8) Regularly tighten the end plate mounting bolts to ensure proper use.
- 9) The products should be stored in the cool and dark place without direct sunshine or moisture.

● 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 Failure caused by the use of the non-confirming state at the user's discretion.
 - 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.



KOSMEK LTD.

▶ <http://www.kosmek.com/>

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- For Further Information on Unlisted Specifications and Sizes, Please call us.
- Specifications in this Leaflet are Subject to Change without Notice.

