Spring Die Lifter
Model RB

Set in the T-slot or U-slot
Easy to load / unload the die with spring lifting rollers.

The die is easily moved to the bolster by the roller of die lifter.
No hydraulic supply is required.

Action Description

Up
Die lifter lifts up by spring force.
Roller is above bolster surface,
and the die can be easily moved by the roller.

Down
Die lifter moves down by clamping force which locks the die.
Roller descends under bolster surface,
and the die contacts the bolster.
Model No. Indication

RB 22 2 0 - V145

1 Applicable Slot Width

22 : Slot Width 22 mm
24 : Slot Width 24 mm
28 : Slot Width 28 mm
32 : Slot Width 32 mm

2 Total Length of Die Lifter

2 : Total Length of Die Lifter 200 mm
3 : Total Length of Die Lifter 300 mm

3 Design No.

0 : Revision Number

4 Option

Blank : Standard

V : High Temperature (0 ～ 200°C)

145 : Total Length of Die Lifter 145 mm*1 *2 (Only when choosing 2 Total Length of Die Lifter 2 : 200 mm)
245 : Total Length of Die Lifter 245 mm*1 *2 (Only when choosing 2 Total Length of Die Lifter 3 : 300 mm)

Notes:

1. For Option 145 and 245, total length of model number will be written in millimeter even if specifications and other documents are written in inch for USA etc.
2. Please contact us for the external dimensions of Option 145 and 245.
3. End plate is not provided. Please refer to “Accessories” on P.120.

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>RB2220</th>
<th>RB2230</th>
<th>RB2420</th>
<th>RB2430</th>
<th>RB2820</th>
<th>RB2830</th>
<th>RB3220</th>
<th>RB3230</th>
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<tr>
<td>Applicable Slot Width mm</td>
<td>22</td>
<td>24</td>
<td>28</td>
<td>32</td>
<td>32 ～ 43</td>
<td>32 ～ 43</td>
<td>44 ～ 58</td>
<td>44 ～ 58</td>
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<tr>
<td>Total Length of Die Lifter mm</td>
<td>200</td>
<td>300</td>
<td>200</td>
<td>300</td>
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<td>300</td>
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<tr>
<td>Number of Rollers (per Die Lifter)</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
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<tr>
<td>Number of Lift Spring (per Die Lifter)</td>
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<td>6</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>4</td>
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<tr>
<td>Lifting Force (per Die Lifter) kN</td>
<td>1.5</td>
<td>2.2</td>
<td>1.5</td>
<td>2.2</td>
<td>2.9</td>
<td>4.4</td>
<td>2.9</td>
<td>4.4</td>
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<td>Operating Temperature °C</td>
<td>0 ～ 110 (V : High Temperature 0 ～ 200 °C)</td>
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**External Dimensions**

**RB2220**

Adjustment Range: 32 - 2

**RB2230**

Adjustment Range: 32 - 2

**RB2420**

Adjustment Range: 32 - 2

**RB2430**

Adjustment Range: 32 - 2

**RB2820**

Adjustment Range: 44 - 2

**RB2830**

Adjustment Range: 44 - 2

**RB3220**

Adjustment Range: 44 - 2

**RB3230**

Adjustment Range: 44 - 2

- Roller
- Lock Nut
- Level Adjusting Bolt
**Accessories : Slot-Mounted End Plate**

- **Model No. Indication**

  **RBE 21 0 - 43**

  - **1 Width**
    - 21 : Width 21 mm (Applicable Die Lifter RB22□0)
    - 23 : Width 23 mm (Applicable Die Lifter RB24□0)
    - 27 : Width 27 mm (Applicable Die Lifter RB28□0)
    - 31 : Width 31 mm (Applicable Die Lifter RB32□0)

  - **2 Design No.**
    - 0 : Revision Number

  - **3 Height**
    - 43 : Height 43 mm (For **1** Width 21, 23)
    - 45 : Height 45 mm (For **1** Width 27)
    - 58 : Height 58 mm (For **1** Width 27, 31)

- **External Dimensions**

<table>
<thead>
<tr>
<th>Model No. Slot-Mounted End Plate</th>
<th>RBE210-43</th>
<th>RBE230-43</th>
<th>RBE270-45</th>
<th>RBE270-58</th>
<th>RBE310-58</th>
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</thead>
<tbody>
<tr>
<td>Model No. Applicable Die Lifter</td>
<td>RB22□0</td>
<td>RB24□0</td>
<td>RB28□0</td>
<td>RB32□0</td>
<td></td>
</tr>
<tr>
<td>Width mm</td>
<td>21</td>
<td>23</td>
<td>27</td>
<td>27</td>
<td>31</td>
</tr>
<tr>
<td>Height mm</td>
<td>43</td>
<td>43</td>
<td>45</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>Applicable Slot Width mm</td>
<td>22</td>
<td>24</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable Slot Depth mm</td>
<td>32 ~ 43</td>
<td>44 ~ 58</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- 1. Please cut the end plate height according to applicable slot depth.

**Accessories : Edge-Mounted End Plate**

- **Model No. Indication**

  **RBF00 0**

  - **External Dimensions**

  2-Hexagon Socket Head Bolt (Included) M8×1.25×16

<table>
<thead>
<tr>
<th>Height mm</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width mm</td>
<td>65</td>
</tr>
</tbody>
</table>

**Note:**
- 1. Edge-Mounted End Plate can be used in all sizes of R8 die lifter.
Cautions

Notes for Design

1) Check Specifications
   • Working pressure of RA die lifter is 25MPa, and maximum operating pressure is 27MPa.
   • Please use the product according to each specification of RA/RB die lifter and RAF roller.

2) Check Die Weight
   • Please use the product within the allowable die weight range. If weight of the die exceeds the allowable range, the bottom of the die may be damaged and it may cause lifting failure.

3) Check the positions of scrap hole and cylinders (only for RA die lifter).
   • If the bolster has a scrap hole, make sure that cylinders on the bottom of RA die lifter are not on the space of scrap hole. If cylinders are on the scrap hole, RA die lifter will be damaged resulting in malfunction and/or dangerous working conditions.

4) Check the positions of scrap hole and mounting bolts (only for RAF roller).
   • If the bolster has a scrap hole, make sure that mounting bolts of RAF roller are not on the space of scrap hole.

Installation Notes

1) Check the fluid to use (for RA Die Lifter Only)
   • Please refer to Hydraulic Fluid List and use the appropriate fluid.

2) Procedure before Piping (for RA Die Lifter Only)
   • The pipeline and piping connector should be cleaned by thorough flushing.

3) Use Hydraulic Hose for Piping (for RA Die Lifter Only)
   • Please use a hydraulic hose since hydraulic connection port moves up and down.

4) Level Adjustment
   • Set the die lifter into U-slot (T-slot) and adjust the level according to dimensions when moving upward and downward. Please refer to the external dimensions for U-slot (T-slot) dimensions and setting of level adjustment.
   • If the level is not adjusted, the load may not be uniformly distributed, which could damage the die and die lifter.
   • Use the level adjusting shims to adjust the RA roller level, and use the level adjusting bolt to adjust the RB roller level and fasten the level adjusting bolt with a lock nut tightened with 5.9-9.8 N • m of torque.

5) Air Bleeding within Hydraulic Circuit (for RA Die Lifter Only)
   • Excessive air in the hydraulic circuit will slow the reaction time and may result in pump continuous idling.
   • After installing the hydraulic circuit, or if the pump run out of oil, be sure to bleed air from the nipple in the case of RA0180/0220/0280 or from the air bleed valve in the case of RA050/080.

Hydraulic Fluid List

<table>
<thead>
<tr>
<th>Maker</th>
<th>Anti-Wear Hydraulic Oil</th>
<th>Multi-Purpose Hydraulic Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showa Shell Sekiyu</td>
<td>Tellus S2 M 32</td>
<td>Morlina S2 B 32</td>
</tr>
<tr>
<td>Idemitsu Kosan</td>
<td>Daphne Hydraulic Fluid 32</td>
<td>Daphne Super Multi Oil 32</td>
</tr>
<tr>
<td>JK Nippon Oil &amp; Energy</td>
<td>Super Hyrando 32</td>
<td>Super Mulpus DX 32</td>
</tr>
<tr>
<td>Cosmo Oil</td>
<td>Cosmo Hydro AW32</td>
<td>Cosmo New Mighty Super 32</td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>Mobil DTE 24</td>
<td>Mobil DTE 24 Light</td>
</tr>
<tr>
<td>Matsumura Oil</td>
<td>Hydrol AW-32</td>
<td></td>
</tr>
<tr>
<td>Castrol</td>
<td>Hyspin AWS 32</td>
<td></td>
</tr>
</tbody>
</table>

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

1) The product should be handled 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 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 disassemble or modify it.
   ② If the equipment is taken apart or modified, the warranty will be void even within the warranty period.

4) Do not touch die lifters while they are working.
   ③ Otherwise, your hands may be injured.

5) Hold the RA Die Lifter Itself when Moving or Removing
   ⑥ If pulling on the hose, RA 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.
   ④ It may lead to malfunction or deterioration of the product causing an accident.

● Maintenance / Inspection

1) Removal of Equipment
   ① Before the equipment is removed, make sure that the preventive devices are in place.
   ② Make sure there is no abnormality in the bolts and respective parts before restarting.

2) Check to make sure that the rollers 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 to make sure that the supply hydraulic pressure is at the operating pressure.

6) Make sure hydraulic fluid is not deteriorated.

7) Make sure the operation is smooth without abnormal sounds. Especially when the equipment has not used for a long period of time or when using for the first time, make sure it operates properly.

8) Regularly tighten the end plate mounting bolts to ensure proper use.

9) When storing the product, keep it out of direct sunlight in a cool location where it is protected from water.

※ Refer to P.177 for common cautions.
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.

   ② 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

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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.

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.

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.
  2. Do not handle or remove the machine unless the safety protocols are ensured.
  3. Do not touch clamps (cylinders) while they are working. Otherwise, your hands may be injured.
  4. Do not disassemble or modify.

- **Maintenance • Inspection**
  1. Removal of the Machine and Shut-off of Pressure Source
  2. Regularly clean the area around the equipment.
  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, cirlcips 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.
  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 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

Sales Offices across the World

<table>
<thead>
<tr>
<th>Country</th>
<th>Address/Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>TEL. +81-78-991-5162 FAX. +81-78-991-8787 KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241</td>
</tr>
<tr>
<td>Overseas Sales</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>TEL. +1-630-620-7650 FAX. +1-630-620-9015 KOSMEK (USA) LTD. 650 Springer Drive, Lombard, IL 60148 USA</td>
</tr>
<tr>
<td>Mexico</td>
<td>TEL. +52-442-161-2347 FAX.</td>
</tr>
<tr>
<td>KOSMEK USA Mexico Office</td>
<td>Blvd Jurica la Campana 1040, B Colonia Punta Juriquilla Queretaro, QRO 76230 Mexico</td>
</tr>
<tr>
<td>EUROPE</td>
<td>TEL. +43-463-287587 FAX. +43-463-287587-20 KOSMEK EUROPE GmbH Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria</td>
</tr>
<tr>
<td>China</td>
<td>TEL. +86-21-54253000 FAX. +86-21-54253709 KOSMEK (CHINA) LTD. 考世美(上海)贸易有限公司 Room 601, RIVERSIDE PYRAMID No.55, Lane 21, Pusan Rd, Pudong Shanghai 200125, China</td>
</tr>
<tr>
<td>India</td>
<td>TEL. +91-9880561695 KOSMEK LTD - INDIA F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560002 India</td>
</tr>
<tr>
<td>Thailand</td>
<td>TEL. +66-2-300-5132 FAX. +66-2-300-5133 Thailand Representative Office 67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand</td>
</tr>
<tr>
<td>Taiwan</td>
<td>TEL. +886-2-82261860 FAX. +886-2-82261890 Full Life Trading Co., Ltd. 益生貿易有限公司 16F-4, No.2, Jian Ba Rd, Zhonghe District, New Taipei City Taiwan 23511</td>
</tr>
<tr>
<td>Philippines</td>
<td>TEL. +63-2-310-7286 FAX. +63-2-310-7286 G.E.T. Inc, Phil. Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427</td>
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Sales Offices in Japan

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<tbody>
<tr>
<td>Head Office</td>
<td>TEL. 078-991-5162 FAX. 078-991-8787</td>
</tr>
<tr>
<td>Osaka Sales Office</td>
<td>TEL. 048-652-8839 FAX. 048-652-8828</td>
</tr>
<tr>
<td>Tokyo Sales Office</td>
<td>TEL. 0566-74-8778 FAX. 0566-74-8808</td>
</tr>
<tr>
<td>Fukuoka Sales Office</td>
<td>TEL. 092-433-0424 FAX. 092-433-0426</td>
</tr>
</tbody>
</table>

...
Global Network

Overseas Affiliates and Sales Offices
Distributors

Asia Detailed Map

FOR FURTHER INFORMATION ON UNLISTED SPECIFICATIONS AND SIZES, PLEASE CALL US.

SPECIFICATIONS IN THIS CATALOG ARE SUBJECT TO CHANGE WITHOUT NOTICE.