

# Compact Linear Actuators

## DRLII Series

For details on these products please refer to our website or contact your nearest Oriental Motor sales office.  
[www.orientalmotor.eu](http://www.orientalmotor.eu)



For detailed information about regulations and standards, please see the Oriental Motor website.



Type with a Guide  
Built-in Controller



Type without a Guide  
Pulse Input

This product features a stepper motor integrated with a ball screw. It is a suitable actuator for pushing and pulling loads and fine-tuning applications.

- High Positioning Accuracy
- Significantly Fewer Parts and Required Assembly Time
- Compact and Lightweight



What is FLEX?

FLEX is the collective name for products that support I/O control, Modbus (RTU) control, and FA network control via network converters.

These products enable simple connection and simple control, shortening the total lead time for system construction.

## Features

### High Positioning Accuracy

A ball screw nut is joined to a hollow rotor.

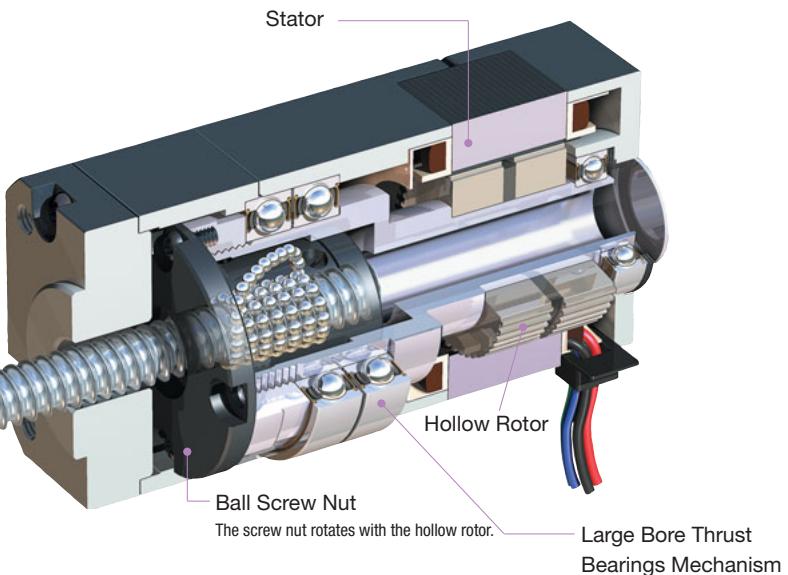
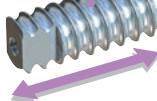
By combining components with coupling rigidity, etc., the backlash effect is reduced and highly accurate positioning can be achieved.

[Repetitive Positioning Accuracy]

Ground ball screw:  $\pm 0.003$  mm   Rolled ball screw:  $\pm 0.01$  mm

#### Ball Screw Shaft

The ball screw shaft moves linearly by an external anti-spin mechanism. Anti-spin mechanisms are not required for types with a guide.



## Significantly Fewer Parts and Required Assembly Time

The compact body houses the entire linear motion mechanism. Some of the conventional parts have been eliminated, so the time required for equipment design and product selection is shortened. Furthermore, the number of man-hours required for assembly and the adjustment of installation accuracy can be reduced, contributing to higher productivity.

## Compact and Lightweight

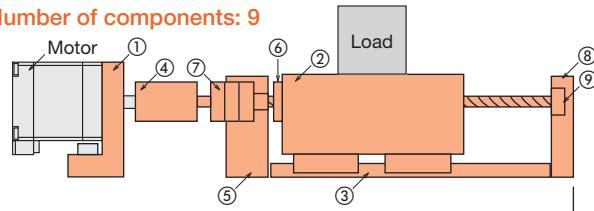
In this structure, the rotor is hollowed out and the ball screw is housed within it. Some customer-supplied parts, such as couplings and ball screw bearings are no longer required, resulting in a more compact and lightweight design.

### Comparison of the Number of Components

Configuration examples of cases where the load is driven by the same stroke

#### Using off the Self Components

Number of components: 9



Overview, Product Series

Electric Linear Slides

**α<sup>STEP</sup> AZ/AR EAS**

**α<sup>STEP</sup> AZ/AR EZS**

Electric Cylinders

**α<sup>STEP</sup> AZ/AR EAC**

Compact Linear Actuators

**α<sup>STEP</sup> AZ DR52**

**DRLII**

Installation

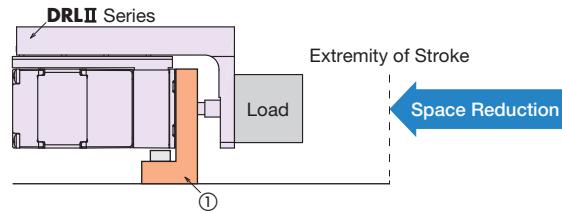
Hollow Rotary Actuators

**α<sup>STEP</sup> AZ/AR DGII**

Accessories

#### DRLII Series, Using the Guide Type

Number of components: 1



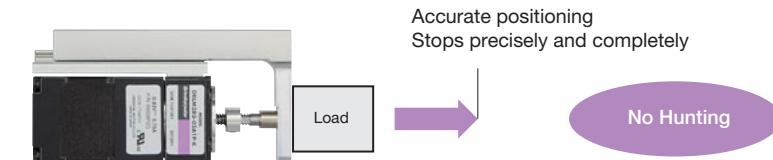
[Parts Used] ①Installation plate ②Transportation table  
③Linear guide ④Coupling ⑤Fixed-side block  
⑥Ball screw ⑦Fixed-side bearing  
⑧Support-side block ⑨Support-side bearing

## Uses Stepper Motors that Stop Precisely

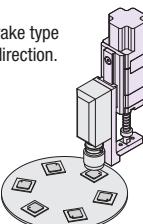
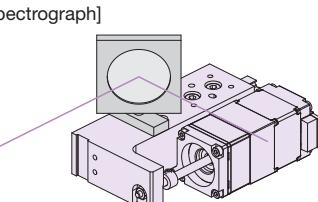
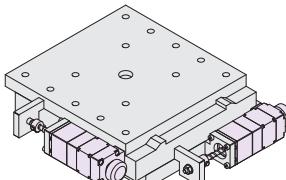
The **DRLII** Series uses stepper motors.

The positioning accuracy of a single step increment of a stepper motor is very accurate, and it can move forward or backward with precision.

Also, because there is no hunting with a stepper motor, stopping accuracy and quick moves can be done more precisely.



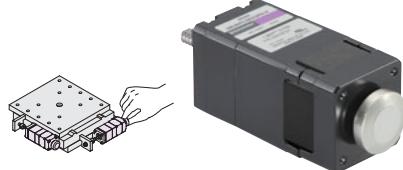
## Choose from 2 Types to Suit the Application

Type	Type with a Guide	Type with a Table	Type without a Guide
External View			
	With this product, the actuator is equipped with a guide to receive loads. Directly installing the load is easy.	With this product, the actuator is equipped with a guide and table to receive loads. Directly installing the load and body is easy, and the limited height of the moving part allows easy transportation.	This product can be incorporated directly into the customer's equipment, or it can be used as a compact thrust force axis in the equipment's load transportation guide.
Stroke mm	25~50	25, 30	25~100
Thrust Force N	15~300	15, 30	15~300
Typical Applications For other applications, refer to page E-198.	[Camera focus drive] * Use the electromagnetic brake type when driving in a vertical direction. 	[Spectrograph] 	[X-Y table] 

## ● Additional Functions

The type without a guide and the type with a guide are available with an electromagnetic brake or adjusting knob as additional functions.

## ◇ With Adjusting Knob



Application The X-Y stage position can finely adjusted or moved

The load position can be adjusted manually when the power is off.

This function is useful during equipment servicing.

## ◇ With Electromagnetic Brake



Application The CCD camera's Z-position is held when the power is off

The load position can be held when the power is off.

Since the work will not fall in the event of power failure or disconnection, it can safely be used in a vertical application.

Long strokes are available for products without a guide: **DRL28**, **DRL42**, and **DRL60**.



## System Configuration

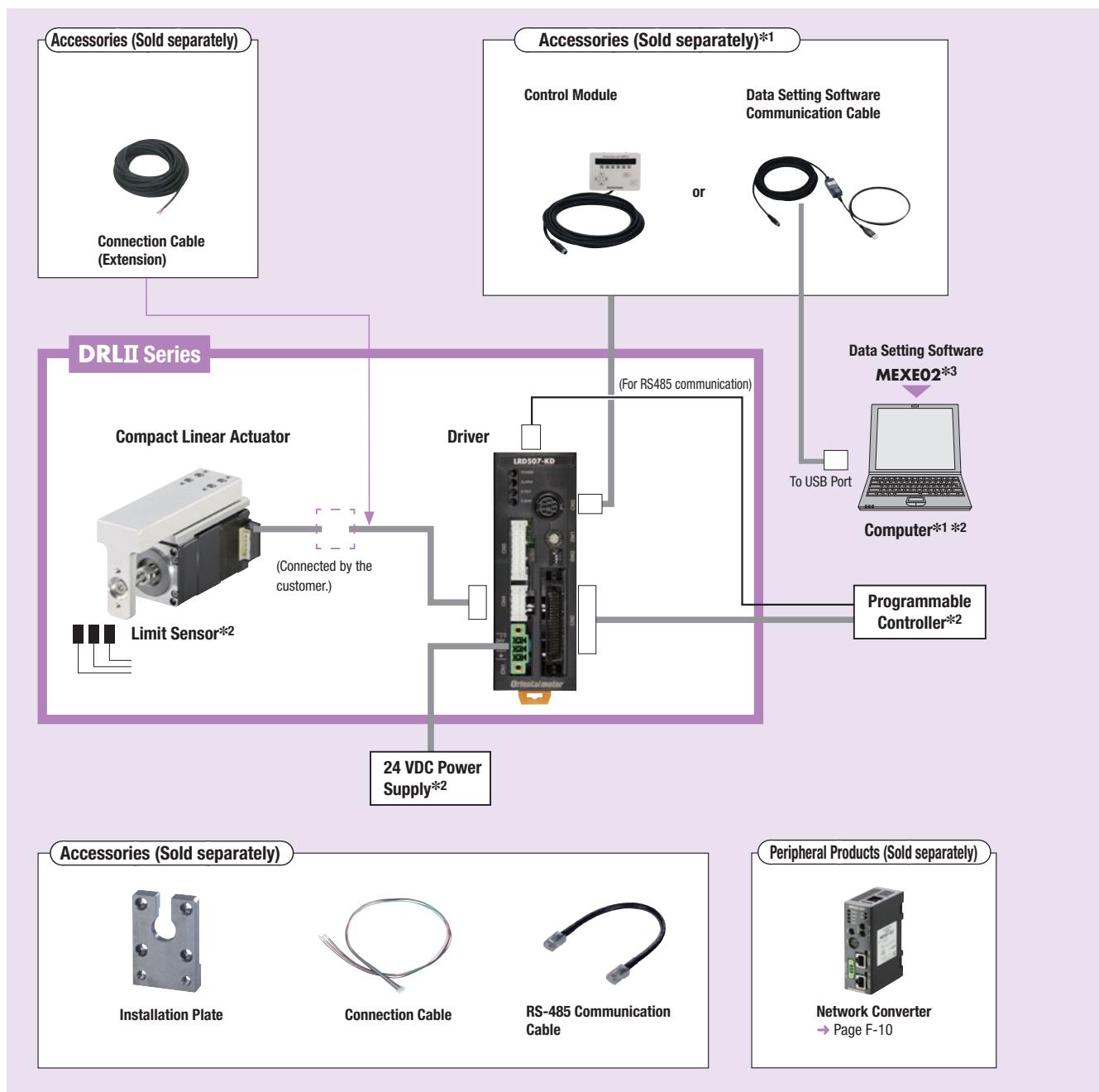
### Built-in Controller Type

An example of a configuration using I/O control or RS-485 communication is shown below.

\*1 Required for I/O control drive.

\*2 Not supplied

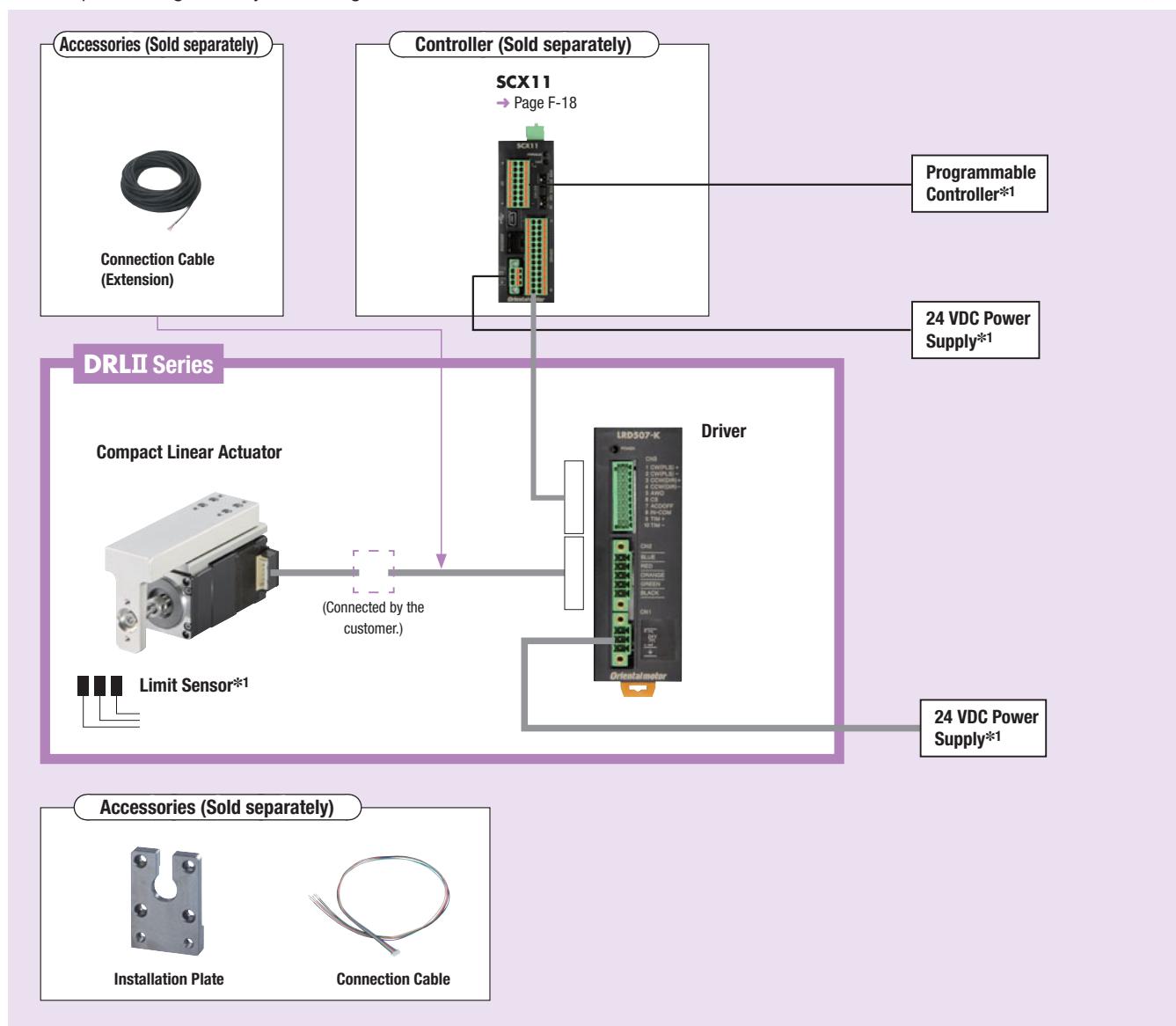
\*3 The data setting software can be downloaded from the Oriental Motor website.



## ● Pulse Input Type

An example of a single-axis system configuration with the **SCX11** controller is shown below.

\*1 Not supplied



## Product Number

**DRL 20 G - 02 B 1 P N - K D**

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

①	Series Name	<b>DRL: DRLII Series</b>
②	Frame Size	<b>20: 20 mm</b> <b>28: 28 mm</b> <b>42: 42 mm</b> <b>60: 60 mm</b>
③	Configuration	<b>G: Type with a Guide</b> <b>V: Type with a Table</b> Blank: Type without a Guide
④	Stroke	<b>02~10: 25~100 mm</b>
⑤	Ball Screw Type	<b>A: Rolled Ball Screw</b> <b>B: Ground Ball Screw</b>
⑥	Lead Screw Pitch	<b>1: 1 mm</b> <b>2: 2 mm</b> <b>4: 4 mm</b> <b>8: 8 mm</b>
⑦	Motor Type	<b>P: Standard</b> <b>M: High Resolution</b>
⑧	Additional Functions	<b>N: With Adjusting Knob</b> <b>M: With Electromagnetic Brake</b> None: Without Additional Functions
⑨	Power Supply Input	<b>K: 24 VDC</b>
⑩	Driver Type	<b>B: Pulse Input</b> <b>D: Built-in Controller</b>

Overview,  
Product  
SeriesElectric  
Linear  
Slides $\alpha^{STEP}$   
AZ/AR  
EAS $\alpha^{STEP}$   
AZ/AR  
EZSElectric  
Cylinders $\alpha^{STEP}$   
AZ/AR  
EACCompact  
Linear  
Actuators $\alpha^{STEP}$   
AZ  
DRS2

DRLII

Installation

Hollow  
Rotary  
Actuators $\alpha^{STEP}$   
AZ/AR  
DGII

Accessories

## Product Line

## Type with a Guide

## Rolled Ball Screw

Built-in Controller Type		Pulse Input Type	
Product Name	List Price	Product Name	List Price
<b>DRL28G-03A1P-KD</b>	€714.00	<b>DRL28G-03A1P-KB</b>	€664.00
<b>DRL28G-03A1PN-KD</b>	€741.00	<b>DRL28G-03A1PN-KB</b>	€691.00
<b>DRL42G-04A2P-KD</b>	€641.00	<b>DRL42G-04A2P-KB</b>	€591.00
<b>DRL42G-04A2PN-KD</b>	€670.00	<b>DRL42G-04A2PN-KB</b>	€620.00
<b>DRL42G-04A2PM-KD</b>	€805.00	<b>DRL42G-04A2PM-KB</b>	€755.00
<b>DRL42G-04A8P-KD</b>	€723.00	<b>DRL42G-04A8P-KB</b>	€673.00
<b>DRL42G-04A8PN-KD</b>	€752.00	<b>DRL42G-04A8PN-KB</b>	€702.00
<b>DRL42G-04A8PM-KD</b>	€887.00	<b>DRL42G-04A8PM-KB</b>	€837.00
<b>DRL60G-05A4P-KD</b>	€759.00	<b>DRL60G-05A4P-KB</b>	€709.00
<b>DRL60G-05A4PN-KD</b>	€791.00	<b>DRL60G-05A4PN-KB</b>	€741.00
<b>DRL60G-05A4PM-KD</b>	€942.00	<b>DRL60G-05A4PM-KB</b>	€892.00

## Ground Ball Screw

Built-in Controller Type		Pulse Input Type	
Product Name	List Price	Product Name	List Price
<b>DRL20G-02B1P-KD</b>	€1,099.00	<b>DRL20G-02B1P-KB</b>	€1,049.00
<b>DRL20G-02B1PN-KD</b>	€1,126.00	<b>DRL20G-02B1PN-KB</b>	€1,076.00
<b>DRL28G-03B1P-KD</b>	€1,019.00	<b>DRL28G-03B1P-KB</b>	€969.00
<b>DRL28G-03B1PN-KD</b>	€1,046.00	<b>DRL28G-03B1PN-KB</b>	€996.00
<b>DRL28G-03B1M-KD</b>	€1,064.00	<b>DRL28G-03B1M-KB</b>	€1,014.00
<b>DRL28G-03B1MN-KD</b>	€1,092.00	<b>DRL28G-03B1MN-KB</b>	€1,042.00
<b>DRL42G-04B2P-KD</b>	€973.00	<b>DRL42G-04B2P-KB</b>	€923.00
<b>DRL42G-04B2PN-KD</b>	€1,002.00	<b>DRL42G-04B2PN-KB</b>	€952.00
<b>DRL42G-04B2PM-KD</b>	€1,137.00	<b>DRL42G-04B2PM-KB</b>	€1,087.00
<b>DRL42G-04B2M-KD</b>	€1,019.00	<b>DRL42G-04B2M-KB</b>	€969.00
<b>DRL42G-04B2MN-KD</b>	€1,048.00	<b>DRL42G-04B2MN-KB</b>	€998.00
<b>DRL42G-04B2MM-KD</b>	€1,183.00	<b>DRL42G-04B2MM-KB</b>	€1,133.00
<b>DRL60G-05B4P-KD</b>	€1,073.00	<b>DRL60G-05B4P-KB</b>	€1,023.00
<b>DRL60G-05B4PN-KD</b>	€1,105.00	<b>DRL60G-05B4PN-KB</b>	€1,055.00
<b>DRL60G-05B4PM-KD</b>	€1,256.00	<b>DRL60G-05B4PM-KB</b>	€1,206.00
<b>DRL60G-05B4M-KD</b>	€1,119.00	<b>DRL60G-05B4M-KB</b>	€1,069.00
<b>DRL60G-05B4MN-KD</b>	€1,151.00	<b>DRL60G-05B4MN-KB</b>	€1,101.00
<b>DRL60G-05B4MM-KD</b>	€1,302.00	<b>DRL60G-05B4MM-KB</b>	€1,252.00

## Type with a Table

## Rolled Ball Screw

Built-in Controller Type		Pulse Input Type	
Product Name	List Price	Product Name	List Price
<b>DRL28V-03A1P-KD</b>	€776.00	<b>DRL28V-03A1P-KB</b>	€726.00
<b>DRL28V-03A1PN-KD</b>	€803.00	<b>DRL28V-03A1PN-KB</b>	€753.00

## Ground Ball Screw

Built-in Controller Type		Pulse Input Type	
Product Name	List Price	Product Name	List Price
<b>DRL20V-02B1P-KD</b>	€1,163.00	<b>DRL20V-02B1P-KB</b>	€1,113.00
<b>DRL20V-02B1PN-KD</b>	€1,190.00	<b>DRL20V-02B1PN-KB</b>	€1,140.00
<b>DRL28V-03B1P-KD</b>	€1,081.00	<b>DRL28V-03B1P-KB</b>	€1,031.00
<b>DRL28V-03B1PN-KD</b>	€1,108.00	<b>DRL28V-03B1PN-KB</b>	€1,058.00

## ● Type without a Guide

## ◇ Rolled Ball Screw

Built-in Controller Type		Pulse Input Type	
Product Name	List Price	Product Name	List Price
<b>DRL28-03A1P-KD</b>	€586.00	<b>DRL28-03A1P-KB</b>	€536.00
<b>DRL28-03A1PN-KD</b>	€613.00	<b>DRL28-03A1PN-KB</b>	€563.00
<b>DRL28-06A1P-KD</b>	€613.00	<b>DRL28-06A1P-KB</b>	€563.00
<b>DRL42-04A2P-KD</b>	€504.00	<b>DRL42-04A2P-KB</b>	€454.00
<b>DRL42-04A2PN-KD</b>	€533.00	<b>DRL42-04A2PN-KB</b>	€483.00
<b>DRL42-04A2PM-KD</b>	€668.00	<b>DRL42-04A2PM-KB</b>	€618.00
<b>DRL42-04A8P-KD</b>	€586.00	<b>DRL42-04A8P-KB</b>	€536.00
<b>DRL42-04A8PN-KD</b>	€615.00	<b>DRL42-04A8PN-KB</b>	€565.00
<b>DRL42-04A8PM-KD</b>	€750.00	<b>DRL42-04A8PM-KB</b>	€700.00
<b>DRL42-10A2P-KD</b>	€531.00	<b>DRL42-10A2P-KB</b>	€481.00
<b>DRL42-10A8P-KD</b>	€613.00	<b>DRL42-10A8P-KB</b>	€563.00
<b>DRL60-05A4P-KD</b>	€613.00	<b>DRL60-05A4P-KB</b>	€563.00
<b>DRL60-05A4PN-KD</b>	€645.00	<b>DRL60-05A4PN-KB</b>	€595.00
<b>DRL60-05A4PM-KD</b>	€796.00	<b>DRL60-05A4PM-KB</b>	€746.00
<b>DRL60-10A4P-KD</b>	€641.00	<b>DRL60-10A4P-KB</b>	€591.00

## ◇ Ground Ball Screw

Built-in Controller Type		Pulse Input Type	
Product Name	List Price	Product Name	List Price
<b>DRL20-02B1P-KD</b>	€953.00	<b>DRL20-02B1P-KB</b>	€903.00
<b>DRL20-02B1PN-KD</b>	€980.00	<b>DRL20-02B1PN-KB</b>	€930.00
<b>DRL28-03B1P-KD</b>	€891.00	<b>DRL28-03B1P-KB</b>	€841.00
<b>DRL28-03B1PN-KD</b>	€918.00	<b>DRL28-03B1PN-KB</b>	€868.00
<b>DRL28-03B1M-KD</b>	€936.00	<b>DRL28-03B1M-KB</b>	€886.00
<b>DRL28-03B1MN-KD</b>	€964.00	<b>DRL28-03B1MN-KB</b>	€914.00
<b>DRL28-06B1P-KD</b>	€982.00	<b>DRL28-06B1P-KB</b>	€932.00
<b>DRL42-04B2P-KD</b>	€836.00	<b>DRL42-04B2P-KB</b>	€786.00
<b>DRL42-04B2PN-KD</b>	€865.00	<b>DRL42-04B2PN-KB</b>	€815.00
<b>DRL42-04B2PM-KD</b>	€1,000.00	<b>DRL42-04B2PM-KB</b>	€950.00
<b>DRL42-04B2M-KD</b>	€882.00	<b>DRL42-04B2M-KB</b>	€832.00
<b>DRL42-04B2MN-KD</b>	€911.00	<b>DRL42-04B2MN-KB</b>	€861.00
<b>DRL42-04B2MM-KD</b>	€1,046.00	<b>DRL42-04B2MM-KB</b>	€996.00
<b>DRL42-10B2P-KD</b>	€927.00	<b>DRL42-10B2P-KB</b>	€877.00
<b>DRL60-05B4P-KD</b>	€946.00	<b>DRL60-05B4P-KB</b>	€896.00
<b>DRL60-05B4PN-KD</b>	€977.00	<b>DRL60-05B4PN-KB</b>	€927.00
<b>DRL60-05B4PM-KD</b>	€1,128.00	<b>DRL60-05B4PM-KB</b>	€1,078.00
<b>DRL60-05B4M-KD</b>	€991.00	<b>DRL60-05B4M-KB</b>	€941.00
<b>DRL60-05B4MN-KD</b>	€1,023.00	<b>DRL60-05B4MN-KB</b>	€973.00
<b>DRL60-05B4MM-KD</b>	€1,174.00	<b>DRL60-05B4MM-KB</b>	€1,124.00
<b>DRL60-10B4P-KD</b>	€1,037.00	<b>DRL60-10B4P-KB</b>	€987.00



For details (specifications, characteristics, dimensions and others) on these products please refer to our website or contact your nearest Oriental Motor sales office.

[www.orientalmotor.eu](http://www.orientalmotor.eu)