

# Safety Interlock Switches

# D4B-□N



Rev. 11.12

## Safety Limit Switch

- Snap-action contact with certified direct opening operation.
- Direct opening mechanism (NC contacts only) added to enable opening contacts when faults occur, such as fused contacts.
- Safety of lever settings ensured using a mechanism that engages a gear between the operating position indicator plate and the lever.
- Equipped with a mechanism that indicates the applicable operating zone, as well as push-button switching to control left and right motion.
- Head seal structure strengthened to improve seal properties (TÜV: IEC IP67, UL: NEMA 3, 4, 4X, 6P, and 13).
- Wide standard operating temperature range: -40 to 80°C.
- Models with gold-plated contacts to enable handling microloads.
- Certified standards: UL, CSA, EN (TÜV), and CCC.



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## Specifications

### Standards and EC Directives

Conforms to the following EC Directives:

- Machinery Directive
- Low Voltage Directive
- EN1088
- EN50041

### Certified Standards

Certification body	Standard	File No.
TÜV Rheinland	EN60947-5-1 (certified direct opening mechanism) GS-ET-15	J9851083
	EN60947-5-1 (uncertified direct opening mechanism)	J50005477 *
UL	UL508	E76675
CSA	C22.2 No. 14	LR45746
CQC (CCC)	GB14048.5	2003010305077612

\*Adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models only.

### Certified Standard Ratings

TÜV (EN 60947-5-1), CCC (GB14048.5)

Item	Utilization category	AC-15
Rated operating current (Ie)		2 A
Rated operating voltage (Ue)		400 V

Note: Use a 10 A fuse type gI or gG that conforms to IEC 60269 as a short-circuit protection device.

UL/CSA (UL 508, CSA C22.2 No. 14)  
A600

Rated voltage	Carry current	Current (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
120 VAC	10 A	60	6	7,200	720
240 VAC		30	3		
480 VAC		15	1.5		
600 VAC		12	1.2		

### Ratings

Rated voltage	Non-inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	10	3	1.5	10	5	2.5		
250	10	2	1	10	3	1.5		
400	10	1.5	0.8	3	1.5	0.8		
8 VDC	10	6	3	10	6			
14	10	6	3	10	6			
30	6	4	3	6	4			
125	0.8	0.2	0.2	0.8	0.2			
250	0.4	0.1	0.1	0.4	0.1			

- Notes: 1. The above values are continuous currents.  
 2. Inductive loads have a power factor of 0.4 or higher (AC) or a time constant of 7 ms or lower (DC).  
 3. Lamp loads have a inrush current of 10 times the normal current.  
 4. Motor loads have a inrush current of 6 times the normal current.

## Connections

### Contact Form

Model	Contact	Contact form	Operating pattern	Remarks
D4B-□1□N	1NC/1NO (Snap-action)			<p>Only NC contact 11-12 has a certified direct opening mechanism. (→)</p> <p>Terminal numbers 11-12 and 13-14 cannot be used as unlike poles.</p>
D4B-□5□N	1NC/1NO (Slow-action)			<p>Only NC contact 11-12 has a certified direct opening mechanism. (→)</p> <p>Terminal numbers 11-12 or 23-24 can be used as unlike poles.</p>
D4B-□A□N	2NC (Slow-action)			<p>Both NC contacts 11-12 and 21-22 have a certified direct opening mechanism. (→)</p> <p>Terminal numbers 11-12 and 21-22 can be used as unlike poles.</p>

Note: Terminal numbers are according to EN50013; contact symbols are according to IEC60947-5-1.

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(mm)

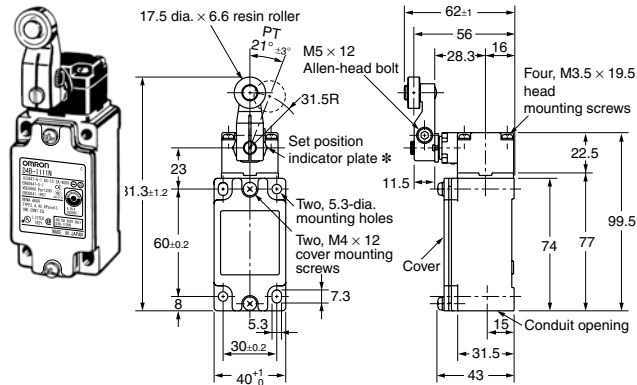
## Dimensions

### Switches

#### 1-conduit Models

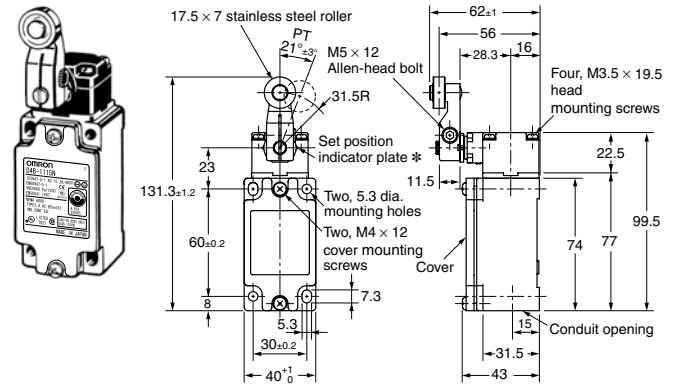
##### Roller Lever

D4B-□□11N



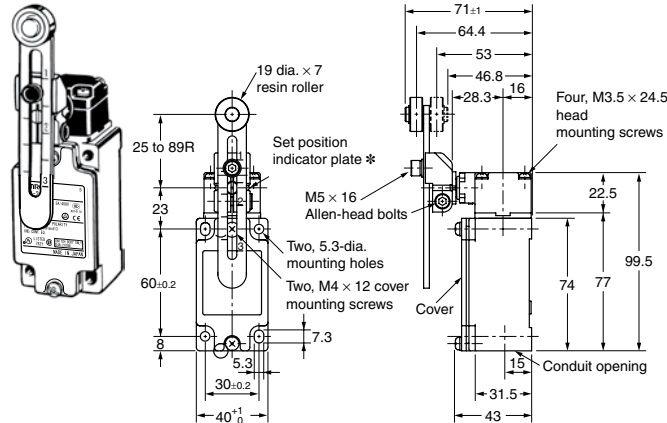
##### Roller Lever (Stainless Steel Roller)

D4B-□□15N



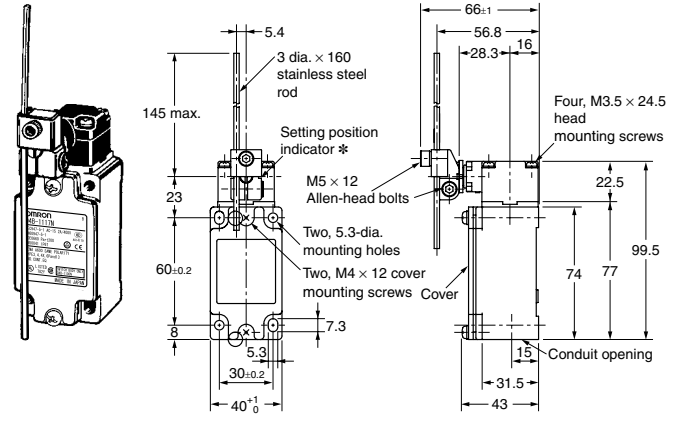
##### Adjustable Roller Lever

D4B-□□16N



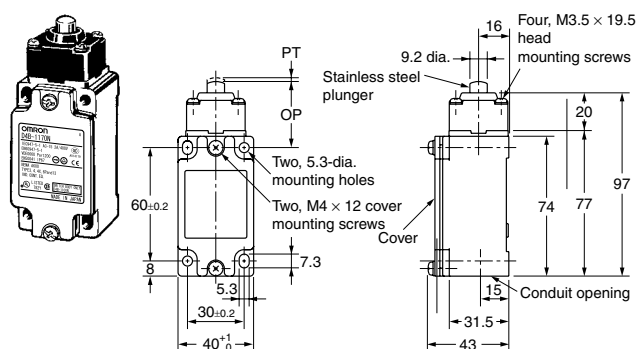
##### Adjustable Rod Lever

D4B-□□17N



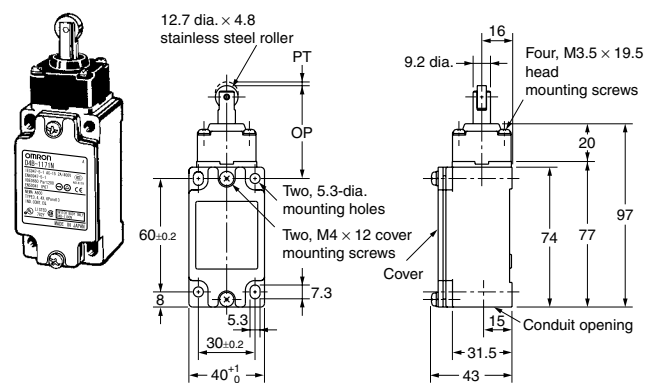
##### Top Plunger

D4B-□□70N



##### Top Roller Plunger

D4B-□□71N



Note: Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

\*The lever can be set to any desired position by turning the operating position indicator.

Note: Omitted dimensions are the same as those for the Roller Lever Type Models. D4B-1□□□N and D4B-5□□□N have a PG13.5 conduit opening. D4B-2□□□N and D4B-6□□□N have a G1/2 conduit opening. D4B-3□□□N and D4B-7□□□N have a 1/2-14NPT conduit opening.

(mm)

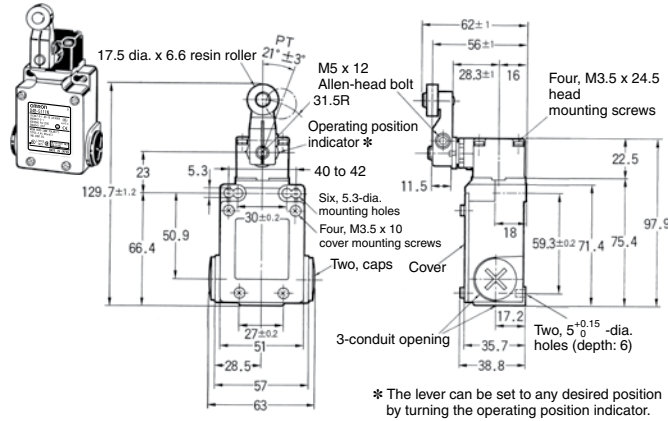
## Dimensions (continued)

## Switches

## 3-conduit Models

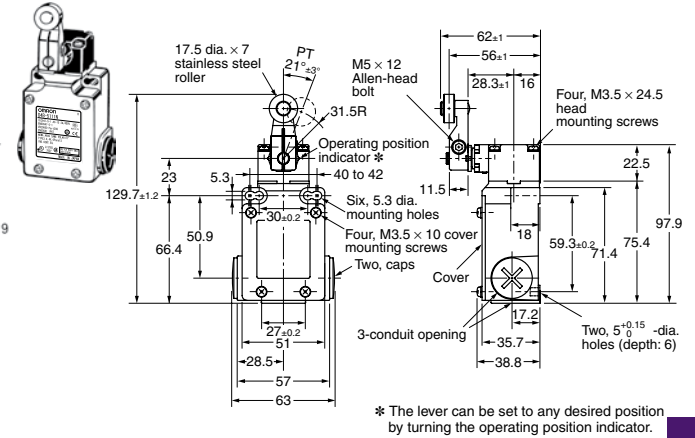
## Roller Lever

## D4B-□□11N



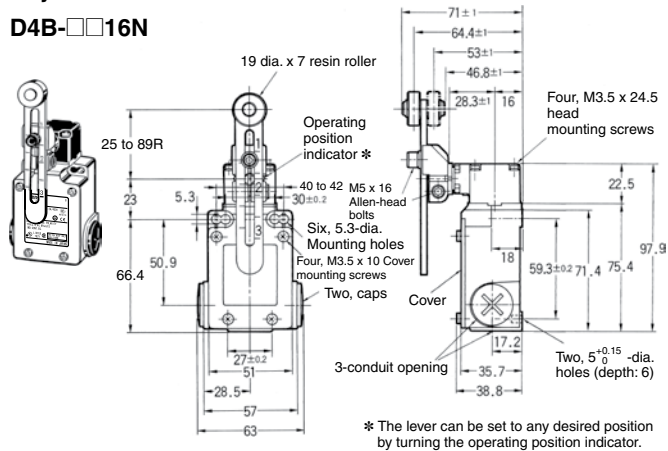
## Roller Lever

## D4B-□□15N



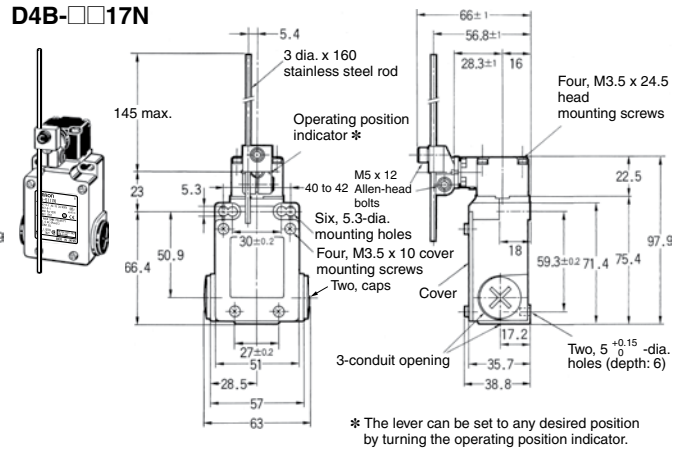
## Adjustable Roller Lever

## D4B-□□16N



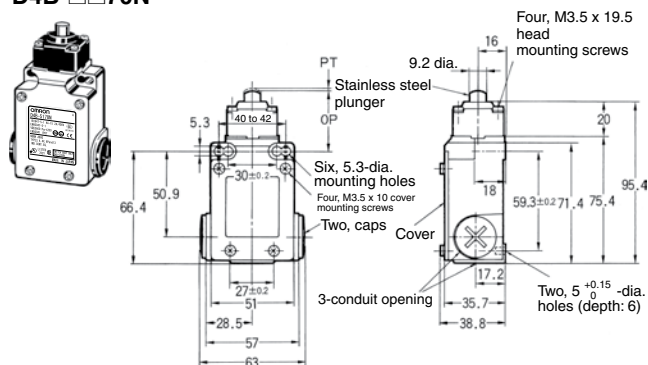
## Adjustable Rod Lever

## D4B-□□17N



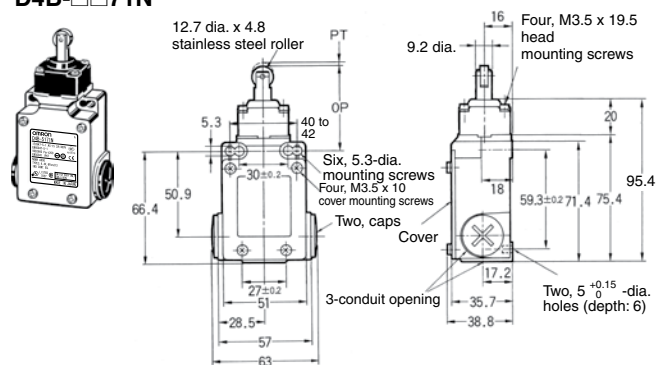
## Top Plunger

## D4B-□□70N



## Top Roller Plunger

## D4B-□□71N



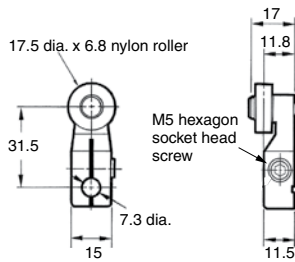
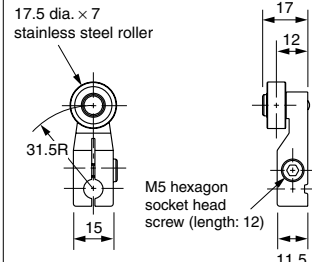
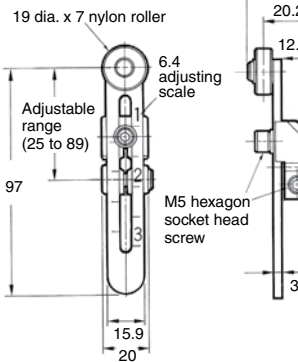
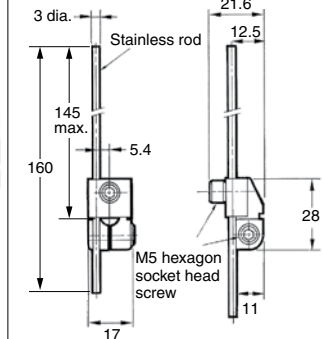
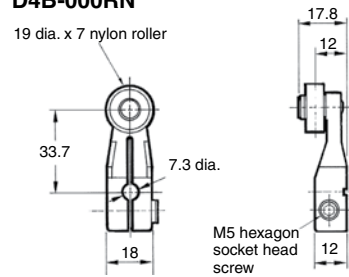
Note: Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

\*The lever can be set to any desired position by turning the operating position indicator.

## Dimensions (continued)

(mm)

## Levers (Applicable for roller lever models only.)

**Roller Lever  
D4B-0001N****Roller Lever  
(Stainless Steel Roller)  
D4B-0005N****Adjustable Roller Lever  
D4B-0006N****Adjustable Rod Lever  
D4B-0007N****Roller Lever (Compatible with  
Previous D4B Model)  
D4B-000RN**

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## Notes:

1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.
2. Safety Limit Switch specifications are satisfied with D4B-□□□□N Levers only (example: D4B-0001N).  
The D4B-0006N Adjustable Roller Lever and D4B-0007N Adjustable Rod Lever, however, cannot be used.  
Do not order them for a Side Rotary Operating Head.

## Ordering

### Model Number Structure

D4B – □ □ □ N

① ② ③

## ① Conduit size

- 2: G1/2 (PF1/2) (1-conduit)
- 3: NPT
- 4: M20 (1-conduit)
- 6: G1/2 (PF1/2) (3-conduit)
- 7: 1/2-14NPT (3-conduit)
- 8: M20 (3-conduit)

## ② Built-in Switch

- 1: 1NC/1NO (snap-action)
- 3: 1NC/1NO (snap-action) gold-plated contacts
- 5: 1NC/1NO (slow-action)\*
- 6: 1NC/1NO (slow-action) gold-plated contacts\*
- A: 2NC (slow-action)
- B: 2NC (slow-action) gold-plated contacts

















\*Excluding D4B-□□81N and D4B-□□87N models.

## ③ Actuator

- 11: Roller lever (resin roller)
- 15: Roller lever (stainless steel roller)
- 16: Adjustable roller lever
- 17: Adjustable rod lever
- 70: Top plunger
- 71: Top roller plunger

### List of Models

#### Safety Limit Switches (with Direct Opening Mechanism)





Actuator	Conduit openings	1NC/1NO (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)	
		Model	Direct opening	Model	Direct opening	Model	Direct opening
Roller lever (resin roller) 	G1/2 (PF1/2)	D4B-2111N		D4B-2511N		D4B-2A11N	
	1/2-14NPT	D4B-4111N-NPT		D4B-4511N-NPT		D4B-4A11N-NPT	
	M20	D4B-4111N		D4B-4511N		D4B-4A11N	
	G1/2 (3-conduit)	D4B-6111N		---		---	
	M20 (3-conduit)	---		D4B-8511N		D4B-8A11N	
Roller lever (stainless steel roller) 	Pg13.5	---		---		D4B-1A15N	
	G1/2 (PF1/2)	D4B-2115N		D4B-2515N		D4B-2A15N	
	1/2-14NPT	D4B-4115N-NPT		D4B-4515N-NPT		D4B-4A15N-NPT	
	M20	D4B-4115N		D4B-4515N		D4B-4A15N	
	Pg13.5 (3-conduit)	D4B-5115N		---		D4B-5A15N	
Top plunger 	G1/2 (PF1/2)	D4B-2170N		D4B-2570N		D4B-2A70N	
	1/2-14NPT	D4B-4170N-NPT		D4B-4570N-NPT		D4B-4A70N-NPT	
	M20	D4B-4170N		D4B-4570N		D4B-4A70N	
	Pg13.5 (3-conduit)	---		D4B-5570N		D4B-5A70N	
	G1/2 (3-conduit)	---		D4B-6570N		D4B-6A70N	
	M20 (3-conduit)	D4B-8170N		D4B-8570N		D4B-8A70N	
Top roller plunger 	G1/2 (PF1/2)	D4B-2171N		D4B-2571N		D4B-2A71N	
	1/2-14NPT	D4B-4171N-NPT		D4B-4571N-NPT		D4B-4A71N-NPT	
	M20	D4B-4171N		D4B-4571N		D4B-4A71N	
	Pg13.5 (3-conduit)	---		D4B-5571N		---	
	G1/2 (3-conduit)	D4B-6171N		D4B-6571N		---	
	M20 (3-conduit)	---		D4B-8571N		D4B-8A71N	

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## Ordering (continued)

### List of Models




#### General Purpose Limit Switches

Actuator	Conduit openings	1NC/1NO (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)	
		Model	Direct opening	Model	Direct opening	Model	Direct opening
Adjustable roller lever 	G1/2 (PF1/2)	D4B-2116N	---	D4B-2516N	---	D4B-2A16N	---
	1/2-14NPT	D4B-4116N-NPT		D4B-4516N-NPT		D4B-4A16N-NPT	
	G1/2 (3-conduit)	D4B-6116N		---		---	
Adjustable rod lever 	G1/2 (PF1/2)	D4B-2117N	---	---	---	D4B-2A17N	---
	1/2-14NPT	D4B-4117N-NPT		D4B-4517N-NPT		D4B-4A17N-NPT	
	Pg13.5 (3-conduit)	---		D4B-5517N		D4B-5A17N	
	G1/2 (3-conduit)	D4B-6117N		D4B-6517N		D4B-6A17N	
Coil spring (non-directional) 	Pg13.5 (3-conduit)	D4B-5181N	---	---		D4B-5A81N	---
	G1/2 (3-conduit)	D4B-6181N				D4B-6A81N	
Plastic rod (non-directional) 	G1/2 (PF1/2)	---	---	---		D4B-2A87N	---
	1/2-14NPT	---				D4B-3A87N	
	Pg13.5 (3-conduit)	---				D4B-5A87N	
	G1/2 (3-conduit)	D4B-6187N				D4B-6A87N	

Notes: 1. In addition to the above models, models compatible with the previous D4B Switches (with standard rotary levers) are available.  
Model number examples: D4B-1□1RN(Pg13.5) or D4B-2□1RN(PF1/2)  
2. Consult your Omron STI representative for products.

### Replacement Parts

#### Switch Boxes

Built-in switch		1-conduit type		3-conduit type		
		G1/2	1/2-14NPT	PG13.5	G1/2	1/2-14NPT
1NC/1NO (Snap-action)		---	D4B-3100N	---	D4B-6100N	D4B-7100N
1NC/1NO (Slow-action)		D4B-2500N	---	D4B-5500N	D4B-6500N	---
2NC (Slow-action)		---	---	D4B-5A00N	D4B-6A00N	---

#### Operating Heads

Actuator	Type	Model
Side rotary *	Standard	D4B-0010N
Top plunger	Plain	D4B-0070N
	Top roller plunger	D4B-0071N
Flexible-rod	Plastic rod	D4B-0087N

\*The Lever is not included with the Side Rotary Operating Head.

#### Levers

Actuator	Length (mm)	Diameter of roller	Model
Standard	31.5	17.5 dia.	D4B-0001N
Stainless steel roller lever	31.5	17.5 dia.	D4B-0005N
Adjustable roller lever	25 to 89	19 dia.	D4B-0006N
Adjustable rod lever	145 max.	---	D4B-0007N
Interchangeable with D4B-0001	33.7	19 dia.	D4B-000RN

Note: Other types of lever are also available.

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