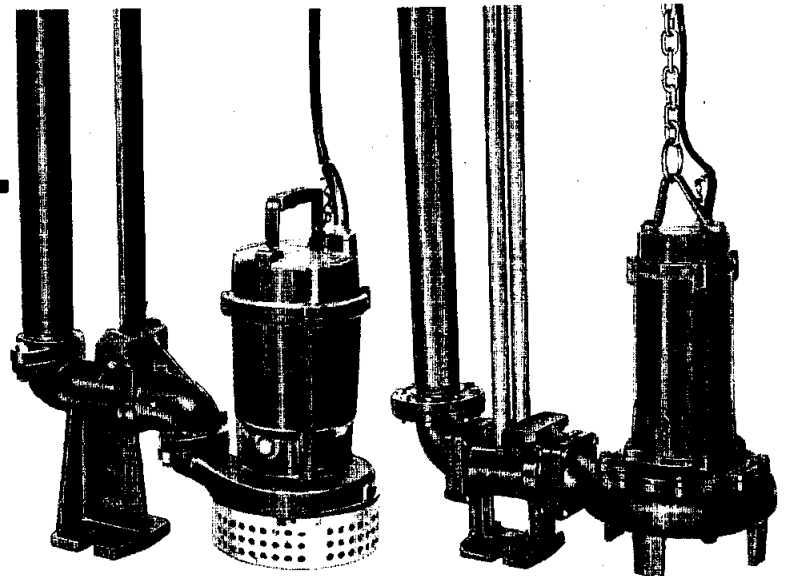


# Instruction Manual

## EBARA Quick Discharge Connector for Submersible Pumps

### MODEL LS, LMM, LM, LL



### Introduction

Check the following points upon receipt of your product.

- (1) Is the product exactly what you ordered? Check the nameplate.
- (2) Has any damage occurred during shipment? Are any bolts or nuts loose?

- (3) Have all necessary accessories been supplied? (For a list of standard accessories see **Construction**.)

We recommend that you keep this instruction manual in a safe place for future reference.

Refer to the pump instruction manual concerned for details on pump operation.

### Specifications

The following table of specifications is for the quick discharge connector.

Model	Model LS	Model LMM	Model LM	Model LL
Material	—	—	—	—
Q.D.C.	Cast iron	Cast iron (Cast stainless)	Cast iron (Cast stainless)	Cast iron (Cast stainless)
Q.D.C. elbow pipe	Cast iron	—	—	—
Q.D.C. flange	—	—	Cast iron (Cast stainless)	Cast iron (Cast stainless) (below $\phi 100$ )
Sliding guide	—	Cast iron (Cast stainless)	—	Cast iron (Cast stainless)
Support bar	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Guide support plate	Steel	Steel (Stainless steel)	Steel (Stainless steel)	Steel (Stainless steel)
Flange	Special flange	Special flange	JIS 10kgf/cm <sup>2</sup> thin flange	JIS 10kgf/cm <sup>2</sup> thin flange

Note: (1) ( ): Cast stainless types.

(2) Cast stainless types of Model LL below  $\phi 100$ .

(3) Be careful not to exceed the given specifications in the use of your products.

# Installation

## 1. Checks before installation

- (1) Check that you have all the parts required for installation, especially the guide rail or the guide pipe.

LS	Angle iron	40 × 40 × 5	1
LMM&LM	Gas pipe	1 in	2
LL	Gas pipe	1½ in	2
	Gas pipe	2 in	2

## 2. Installation

- (1) Secure the unit horizontally with the anchor bolts. If, for some reason, the unit has not been anchored properly, it may tilt and its performance may be impaired. For models LM and LL, join the pump discharge elbow to the unit.
- (2) For models LMM, LM and LL, set accessory guide pins as shown in Figs. 1 and 2.

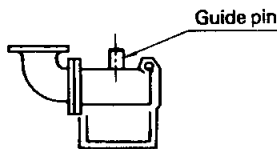


Fig. 1

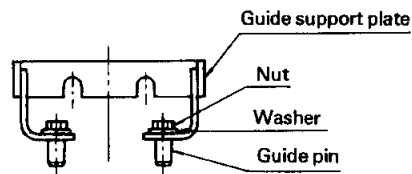


Fig. 2 (LL  $\phi$ 125 ~  $\phi$ 300)

(Top portion of the guide rail)

- (3) Secure the guide rail or guide pipe, whichever is provided, using guide support plate for vertical alignment. (See Figs. 3,4)

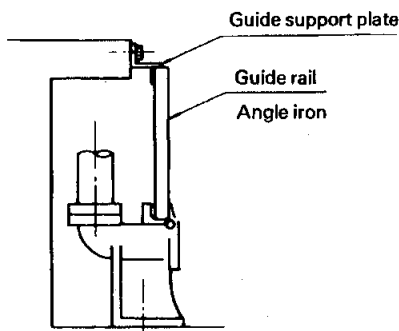


Fig. 3 Model LS

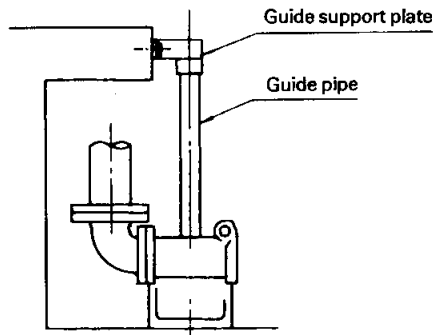


Fig. 4 Model LM, LL

- (4) Connect piping to the companion flange which is an accessory to the unit.
- (5) Install the following on the pump, Q.D.C. flange, Q.D.C. elbow, or sliding guide. Refer to Figs. 5,6 and 7.

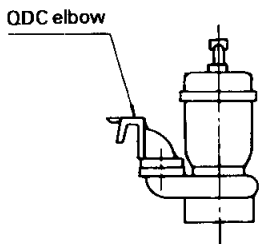


Fig. 5 Model LS

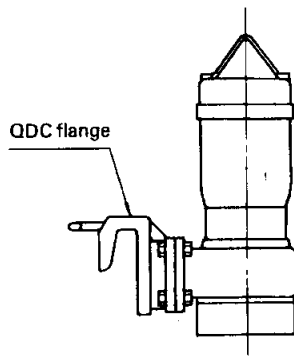
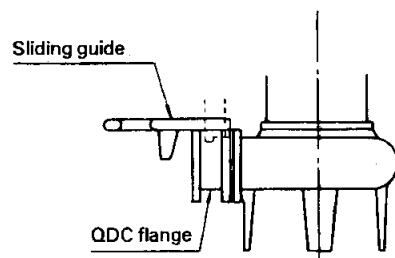


Fig. 6 Model LM



If  $\phi$ 125 is exceeded, install the sliding guide directly to the pump flange.

Fig. 7 Model LL

(6) Install suspension rope or chain to pump grip or suspender as shown in Figs. 8 and 9.

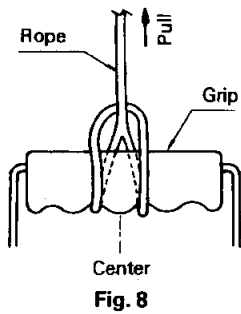


Fig. 8

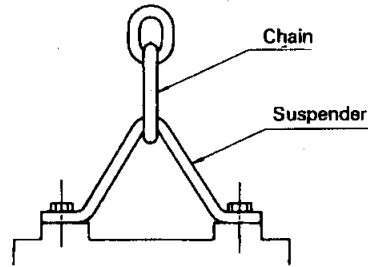


Fig. 9

When connecting the chain to the pump grip use a shackle (optional accessory) as shown in Fig. 10.

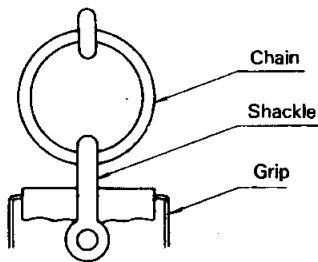


Fig. 10

(7) Lift the pump using a chain fall or hoist and insert sliding portion of Q.D.C. elbow into guide rail (Fig. 11) or insert sliding portion of Q.D.C. flange or sliding guide into guide pipe (Fig. 12)

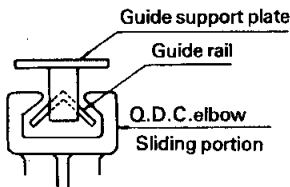


Fig. 11 Model LS

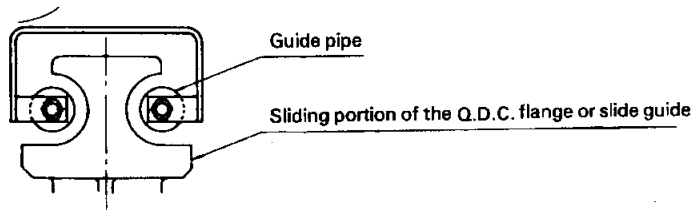


Fig. 12 Model LMM, LM, LL

(8) Keep the support rope or a chain vertical, lower the pump gradually and set on Q.D.C. body. To confirm setting, lift the pump body about 5 cm and lower again two to three times. Ensure that support chain or rope and cables do not interfere with operation. This now completes the installation. During installation, proceed very carefully and take every precaution to prevent the unit and the pump from being dropped. Pump should not be inclined in excess of values  $\theta^\circ$  shown in the table at right when raising or lowering.

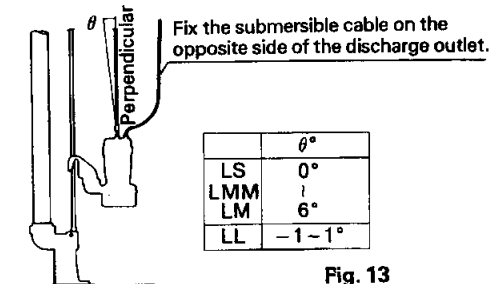


Fig. 13

### 3. Reinforcement for guide rail or guide pipe.

- (1) Guide rails or guide pipes are strong enough, yet continuous usage may cause them to become flexible and might interfere with operation of the Q.D.C. In this event, follow the procedure shown for better security.

Guide types			Reinforcement
Angle Iron	40 × 40 × 5	5m or over	Figure 14
Gas Pipe	12	5.5m or over	Figures 15, 16
Stainless pipe	12	4m or over	

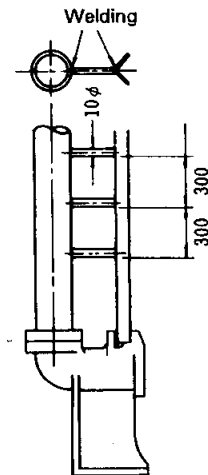


Fig. 14

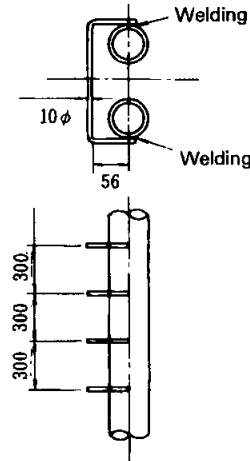


Fig. 15

Also, for models LM and LL, intermediary support as shown in Fig. 16, is available as an optional accessory.

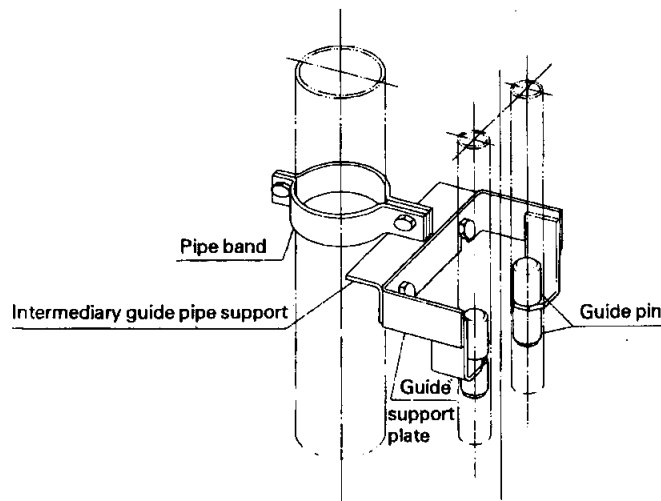


Fig. 16

#### 4. QDC operation

- (1) When raising the pump for inspection, follow instructions in steps 2-8), (7), in that reverse order.
- (2) In the event lifting or lowering of the pump along the guide is not possible because the pump catches on something by adherence of foreign matter or a faulty lifting position, avoid pulling the chain or the rope with excessive force or loosening it. Change the lifting position and carefully try to move the equipment to avoid damage.
- (3) When lifting or lowering the pump, the motor cable should never be pulled. Proceed carefully so that this cable is not cut or in any way damaged.

# Operation

Please read while referring to pump instruction manual.

## Test operation

- (1) Upon completion of the pump installation, but before placing the pump in service, start and stop the immersed pump a few times and check for normal operation.
- (2) There is danger that foreign matter will adhere to the flange surface when re-installing the pump. Therefore, when lowering the pump, start just before installation and stop. Conduct the checks outlined in section (1) and then start normal operation.
- (3) Always observe the lowest operating water level. If the water ever falls below this level, air will be drawn in and it will no longer be possible for the pump to discharge water.

# Maintenance

- (1) Ensure that the cable and lifting chain are tightly secured and that the chain is not corroded.
  - (2) Ensure that there is no abnormal vibration noise during actual operation.
- Refer to the instruction manual accompanying the pump for details on pump maintenance.

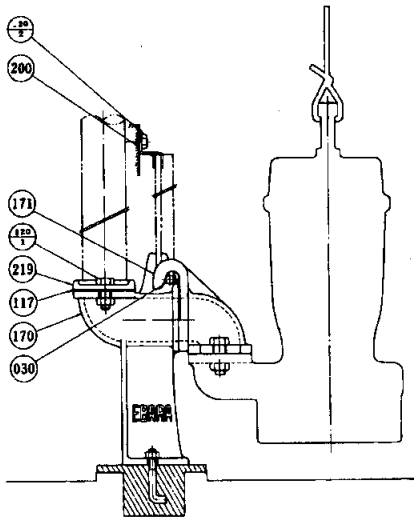
# Troubleshooting

Trouble	Cause	Remedy
Q.D.C. malfunction.	<ol style="list-style-type: none"> <li>1. Position of lifting chain or rope is not vertical.</li> <li>2. Rope on the grip is out of place.</li> <li>3. Cable or chain is twisted around the guide.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change lifting position.</li> <li>2. Fix the rope firmly to the center of the grip.</li> <li>3. Untwist carefully.</li> </ol>
Defective Pumping (Insufficient water volume)	<ol style="list-style-type: none"> <li>1. Foreign matter on flange; gap in flange surface.</li> <li>2. Foreign matter clogging unit.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-seat Q.D.C. unit.</li> <li>2. Remove foreign matter.</li> </ol>
Vibration or noise.	<ol style="list-style-type: none"> <li>1. Loose bolts.</li> <li>2. Defective pump installation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten all bolts.</li> <li>2. Re-seat Q.D.C. unit.</li> </ol>

\*Refer to pump instruction manual for details on pump troubleshooting.

# Construction

## Model LS



PART NO.	PART NAME	NO. FOR 1 UNIT
030	SUPPORT BAR	1
117	GASKET	1
120-1	BOLT	2
120-2	BOLT	2
170	Q.D.C. BODY	1
171	Q.D.C. ELBOW	1
200	PIPE SUPPORT	1
*219	COMPANION FLANGE	1

\* Pump accessory

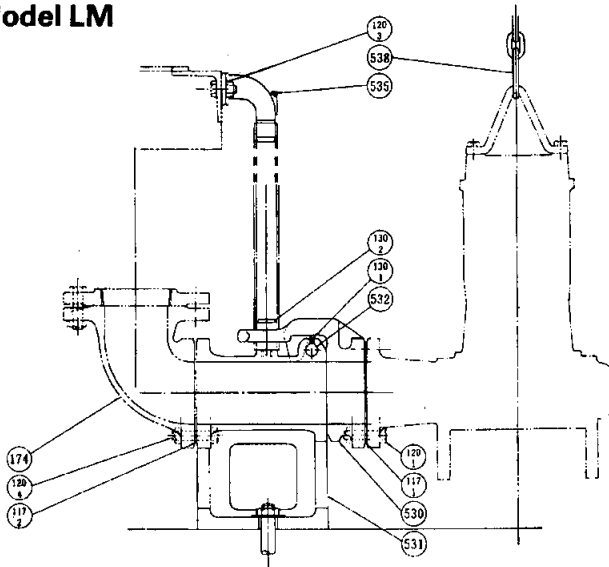
### Standard accessories

- Support plate ..... 1
- Bolt nut for companion flange..... 2
- Gasket for companion flange ..... 1
- Bolt for support plate ..... 2

### Optional accessories

- Guide rail (L-40 x 40 x 5) ..... 5.5m
- Shackle

## Model LM



PART NO.	PART NAME	NO. FOR 1 UNIT
117-1	GASKET	1
117-2	GASKET	1
120-1	BOLT · NUT	4
120-2	NUT	2
120-3	NUT	2
120-4	NUT	4
130-1	BOLT	1
130-2	GUIDE PIN	2
135	WASHER	2
174	DISCHARGE ELBOW	1
530	Q.D.C. FLANGE	1
531	Q.D.C. BODY	1
532	SUPPORT BAR	1
535	GUIDE SUPPORT PLATE	1
538	CHAIN	1

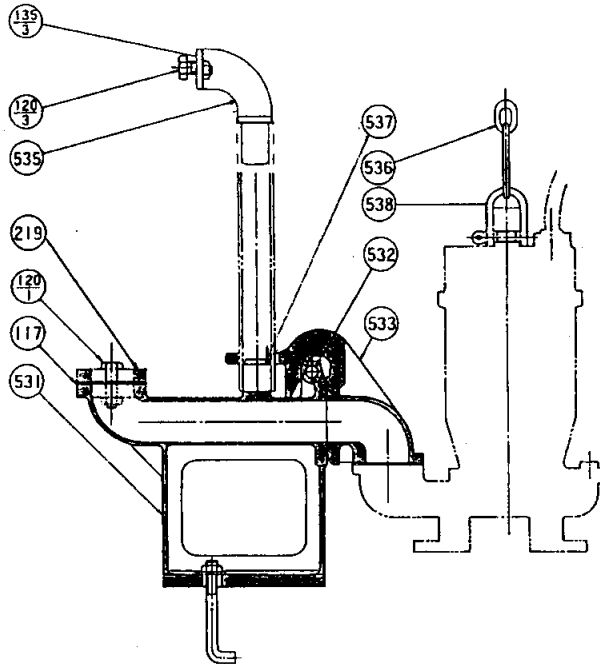
### Standard accessories

- Guide pin ..... 4sets
- Flange packing ..... 1
- Nut for flange bolt ..... 4sets
- Support plate ..... 1
- Nut for support plate bolt. .... 2sets
- Chain (rolled steel) ..... 6m

### Optional accessories

- Guide pipe (gas pipe) ..... 5.5m
- (Stainless pipe) ..... 4m
- Floor frame..... for 1 - 4
- Floor plate
- Intermediate support
- Chain (Stainless)

## Model LMM



PART NO.	PART NAME	NO. FOR 1 UNIT
117	GASKET	1
120-1	BOLT AND NUT	2
120-2	NUT	2
120-3	BOLT AND NUT	2
135-2	WASHER	2
135-3	WASHER	2
*219	COMPANION FLANGE	1

PART NO.	PART NAME	NO. FOR 1 UNIT
531	Q.D.C. BODY	1
532	SUPPORT BAR	1
533	SLIDING GUIDE	1
535	GUIDE SUPPORT PLATE	1
536	CHAIN	1
537	GUIDE PIN	2
538	SHACKLE	1

\* Pump accessory

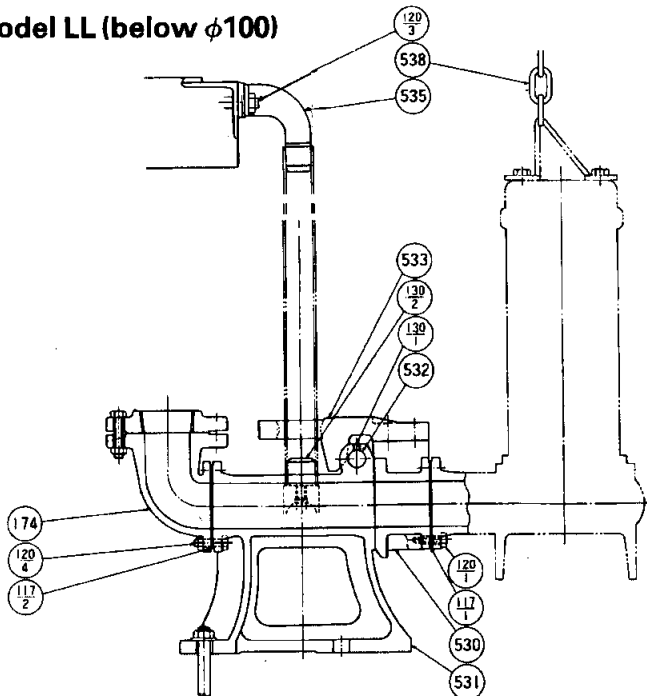
### Standard accessories

Guide pin	4sets
Flange packing	1
Nut for flange bolt	2sets
Support plate	1
Nut for support plate bolt	2
Chain	6m
Shackle	1sets

### Optional accessories

Guide pipe(gas pipe)	5.5m
(Stainless pipe)	4m
Floor frame	for 1~4
Floor plate	
Chain(stainless)	

## Model LL (below $\phi 100$ )



PART NO.	PART NAME	NO. FOR 1 UNIT
117-1	GASKET	1
117-2	GASKET	1
120-1	BOLT	4
120-2	NUT	2
120-3	BOLT	2
120-4	BOLT	4
130-1	BOLT	1
130-2	GUIDE PIN	2
135	WASHER	2
174	DISCHARGE ELBOW	1
530	Q.D.C. SHORT PIPE	1
531	Q.D.C. BODY	1
532	SUPPORT BAR	1
533	SLIDING GUIDE	1
535	GUIDE SUPPORT PLATE	1
538	CHAIN	1

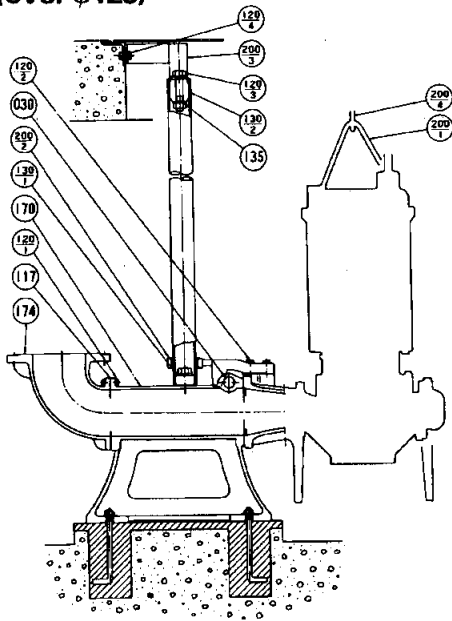
### Standard accessories

Guide pin	5.5m
Flange packing	1
Nut for flange bolt	4sets
Support plate	1
Nuts and bolt for support plate	2sets
Chain (rolled steel)	6m
Steel wedge	8

### Optional accessories

Guide pipe (gas pipe)	5.5m
Guide pipe (stainless pipe)	4m
Intermediate support	
Chain (stainless)	
Floor frame	1~4
Floor plate	

**Model LL (over  $\phi 125$ )**



PART NO.	PART NAME	NO.FOR 1 UNIT
030	SUPPORT BAR	1
117	GASKET	1
120-1	BOLT	4
120-2	BOLT	4
120-3	BOLT	2
120-4	BOLT	4
130-1	GUIDE PIN	2
130-2	BUSHING	2
135	WASHER	2
170	Q.D.C. BODY	1
174	DISCHARGE ELBOW	1
200-1	SUSPENDER	1
200-2	SLIDING GUIDE	1
200-3	RAIL SUPPORT PLATE	1
200-4	LIFTING CHAIN	1

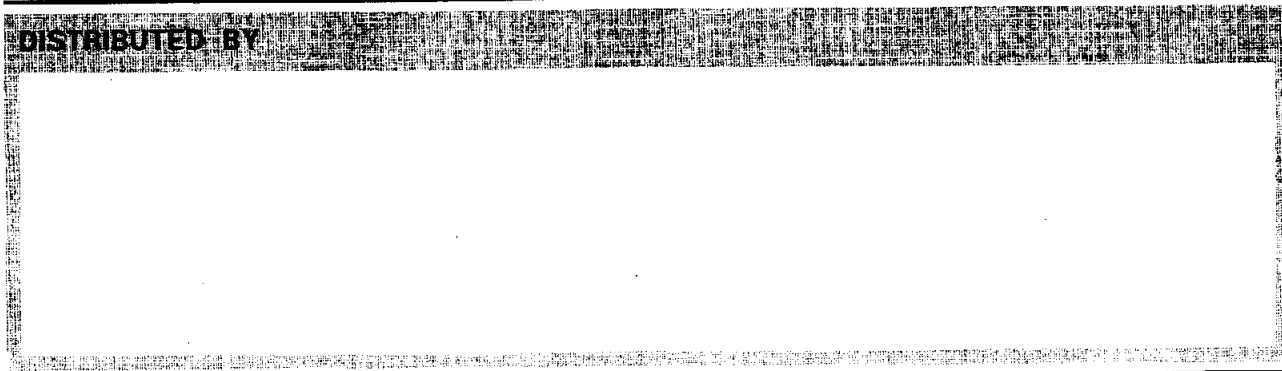
**Standard accessories**

- Guide pin and bolt . . . . . 2sets
- Rubber bushing, bolt and nut . . . . . 2sets
- Support plate and nut . . . . . 1set
- Chain . . . . . 6m
- Steel wedge . . . . . 8sets
- Bolt for sliding guide . . . . . 4

**Optional accessories**

- Guide pipe (gas pipe) . . . . . 5.5m
- Guide pipe (stainless pipe) . . . . . 4m
- Guide pipe
- Chain (stainless) . . . . . 6m
- Floor frame . . . . . 1~4
- Floor plate
- Intermediate support

• All specifications subject to change without notice.  
 In this catalog, the particulars in [ ] are in accordance with the International System of Units (SI) and given for reference only.



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