INJECTION PUNP

KIP－1

INSTRUCTION MANUAL

KWK KOWA CORPORATION

2007.11.19

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○Injection pump

○Assembling drawing

1. GENERAL DESCRIPTION

This pump has been developed as the lubricating unit applicable to oil lubrication from small to large conveyor chain .

This pump functions as given below: The timing of lubrication is detected by using a non-contact sensor, and the minute amount of oil is accurately injected from the nozzle to the intended point by actuating instantaneously the pump.

2. COMPOSITION

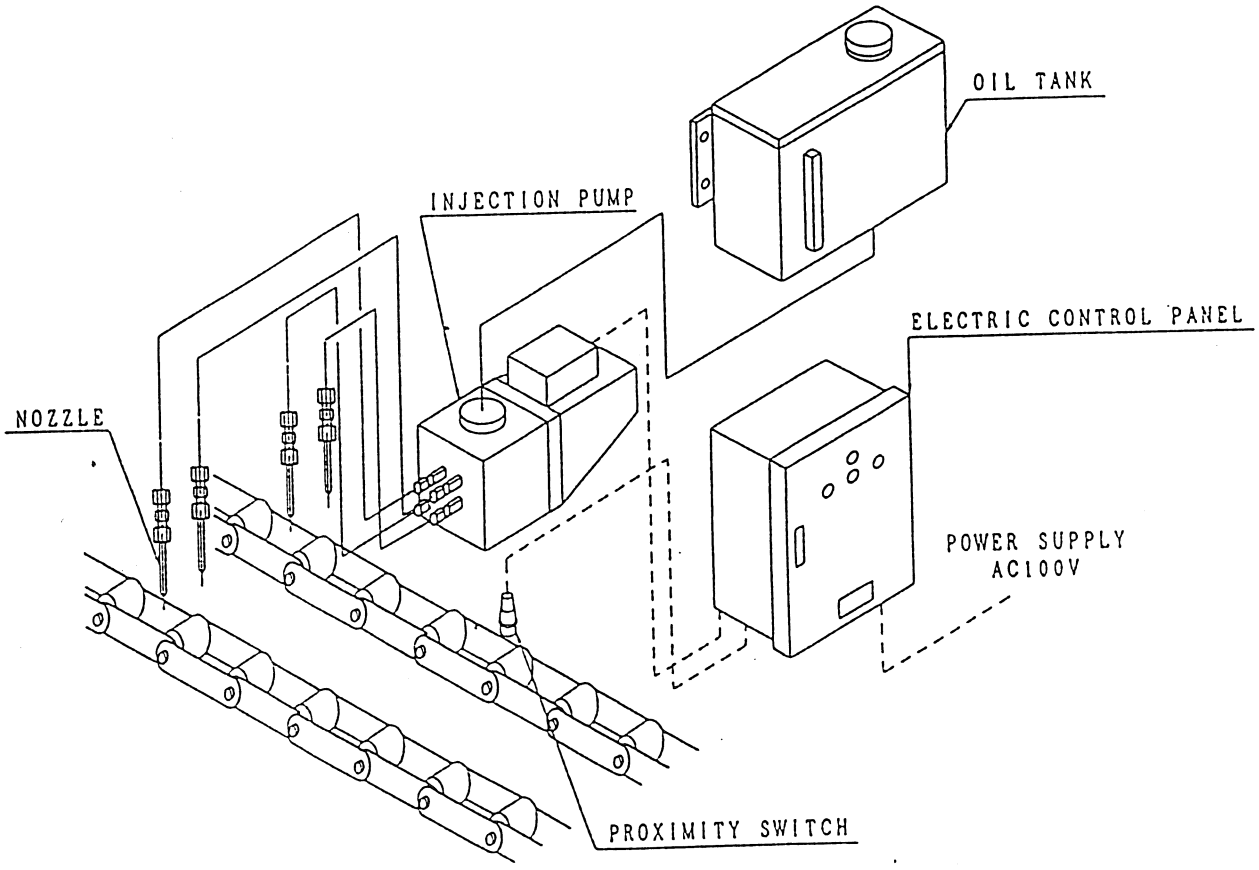
(1) Injection pump

(2) Tank

(3) Electric control panel

(4) Sensor (Proximity switch)

(5) Others



3. CHARACTERISTICS

(1) Non-contact, and no affecting adversely.

(2) Because of the minute amount of injection, the oil will not be atomized and the environment near the unit will not be worsened. The lubrication is carried out to a necessary point only. Accordingly, the oil will not adhere to the products.

(3) The control to lubrication is able to be performed variously:

Manually operated starting - Automatic stop,

Automatic starting - Automatic stop and others

(4) The capacity of tank can be selected variously according to the scale.

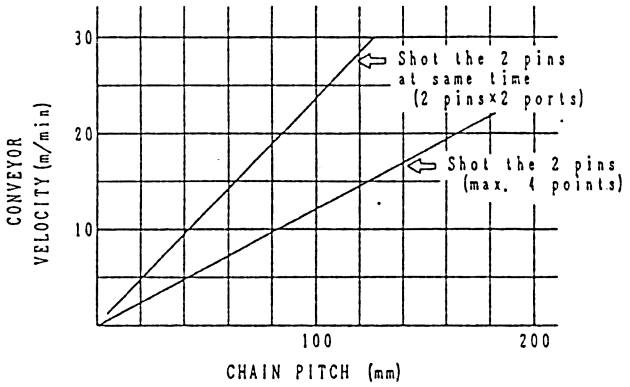
【APPLICATIONS】

1. Lubrication to the chain link of trolley conveyor in the assmbly line such as automobile and household electrical appliances.
2. Lubrication to the various conveyor chain of ironworks and to the chain link for three-dimensional rotary type parking lot.
3. Lubrication to all movables by using oil injection.

【SCOPE OF SERVICE】

1. Chain speed and velocity

Max. frequency of pump is to be of 120/min.



The speed in excess of the above-mentioned value is allowed by increasing the quantity of pump.

2. The viscosity of oil is to be below 1000 cst in actual viscosity.

4. SPECIFICATION

MODEL	KIP-121	KIP-141	KIP-122	KIP-142
DISCHARGE PORT	2	4	2	4
DISCHARGE PRESSURE	30 kgf/cm2 2.94MP	15 kgf/cm2 1.47MP	30 kgf/cm2 2.94MP	15 kgf/cm2 1.47MP
DISCHARGE CAPACITY	0.04cc/SHOT/1PORT			
ACTUATING TIMES	MAX 2TIMES/SEC			
NUMBER OF NOZZLE	2	4	2	4
POWER SUPPLY	AC100V		AC200V	
WEIGHT	4.7kg			
ACCESSORIES	BOLT & NUT M8×100L 2SETS			

5. INSTALLATION

(1) Installation of Lubricating Pump

1) With respect to the lubricating oil pump, select the place being readily accessible for maintenance and inspection, avoid places where dirt, dust, heat, water or vibration may be excessive, and perform a horizontal installation.

2) Select the place being free from vibration being caused by chain as to the lubricating point, and the guideline of distance from nozzle to chain is to be of 100mm, and also fix that the nozzle can not vibrate.

As the nozzle position is adjusted to move by the test operation, fix in the djustable condition or fix after the adjustment.

3) Mount the nozzle just downwards basically.
(If mounted laterally, the oil sometimes drops from the nozzle.)

4) Prepare the installation schedule so that the distance between the lubricating oil pump and nozzle can be within 1 m in copper tube (ϕ6).

5) The quantity of port includes 2-ports and 4-ports. Never provide the plug for the discharge port. If plugged in, it causes the damage to the solenoid.)
If you to reduce the quantity of port, please consult with us.

(2) Mounting of Tank

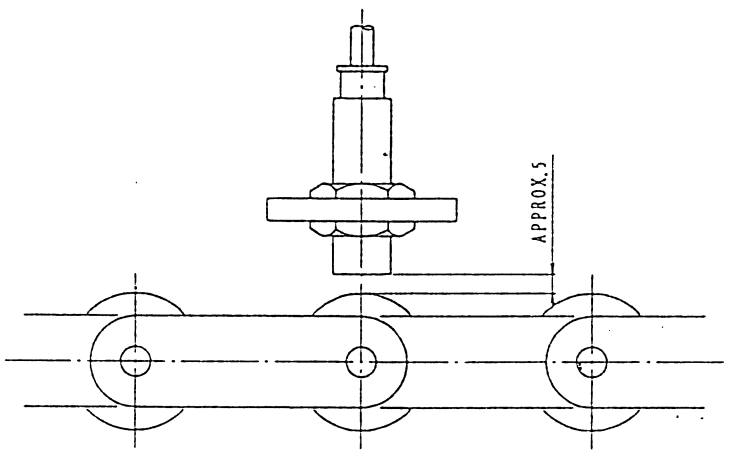
The tank includes: In the one type, the lubricating oil pump is mounted directly on the acrylic tank (2ℓ) and the other type is connected thereto by the separate pipeline.
For the separate type, mount on the part higher 500 mm than the pump, and select the piping size being capacble of supplying fully the oil to the pump for connection.

(3) Proximity Switch (As for the timing actuating the lubricating oil pump, it is signalled by using the proximity switch.)

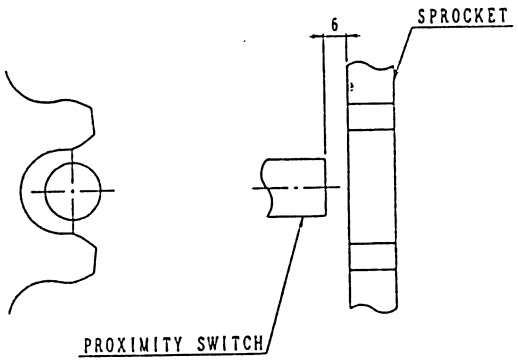
· If the nozzle position is determined, fix the nozzle with the support.
· If the oil drops by the direction of nozzle, provide the oil pan etc.

◎ Mounting of proximity switch (TL-X10MY1)

① In case the signal is taken from the roller of chain;



② In case the signal is taken from the sprocket;



③ In case the signal is taken from other machine element;

Mount the proximity switch apart from the machine by approximately 6 mm.

6. TEST OPERATION

(1) Before turning on the power supply, check to see if the wiring and piping work is executed correctly.

(2) Turn on the power supply, and carry out the operation.

At the initial stage, the air may be mixed in the pipeline etc., and perform the operation several times (until the air is gone and the oil is injected).

In case the tank is separately installed, loosen the air vent of pump body until the oil collects in the supply pipe. If the oil comes out, shut it.

(3) Check to see if the nozzle injection position provides the target position (pins) of chain. If deviated, move the nozzle position or the proximity switch.

7. TROUBLE-SHOOTING

TROUBLE	POSSIBLE CAUSES	CHECK & REMEDY
Pump does not work.	· Power supply turns off.	· Turn on the power.
	· Protector of solenoid works.	· Search the cause. After the remedy, turn on again.
	· Proximity switch comes off.	· Install again.
	· Solenoid causes seizure.	· Replace the solenoid.
	· Piston is caught by foreign matter, exerting unusual load thereupon.	· Repair the piston.
	· Pipeline or nozzle is clogged, and unusual load is exerted thereupon, resulting in seizure.	· Repair and flush the pipeline.
	· Plugged the discharge.	· Open the discharge port.
Pump works, but oil does not comes out.	· Tank empties.	· Supply oil.
	· Air collects in suction portion.	· Air vent.
	· Foreign matter is caught in the pump outlet check, and the check action is not made.	· Disassemble and flush the check.
Injection is not made to the target point.	· Nozzle or proximity switch moves, and timing comes off.	· Install and adjust again nozzle or proximity switch.

○ ELECTRIC CONTROL PANEL (FT-1235)

This electric control panel converts the signal sent from the proximity switch to the operation of injection pump, which is provided with the operation timer, intermittent timer, and power supply lamp & operation timer.

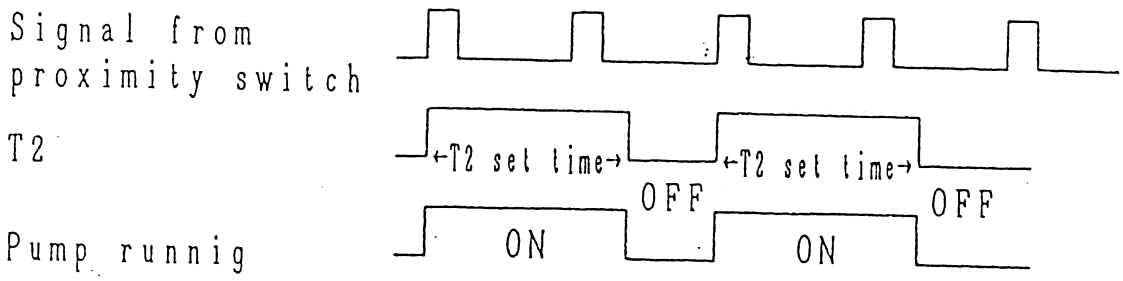
(1) When plug socket is connected, the power lamp "WL" goes on.

(2) Operation ① Turn the toggle switch to "ON". The operation lamp "RL" goes on.

② On the basis of the signal of proximity switch, the injection pump works every two portions, and the oil is discharged.

(3) Stop ① When the operation timer "T1" provides the setting time, the pump stops and the operation lamp "RL" goes off.

② When the toggle switch is turned to "OFF", the pump stops, and the operation lamp "RL" goes off.



(4) In case the pump does not run:

① Power supply is not turned to ON.

② Fuse opens up.

改訂REV	改定内容 DISCRIPTION	日付 DATE	担当SIGN
△	CAD化	09.02.26	加藤
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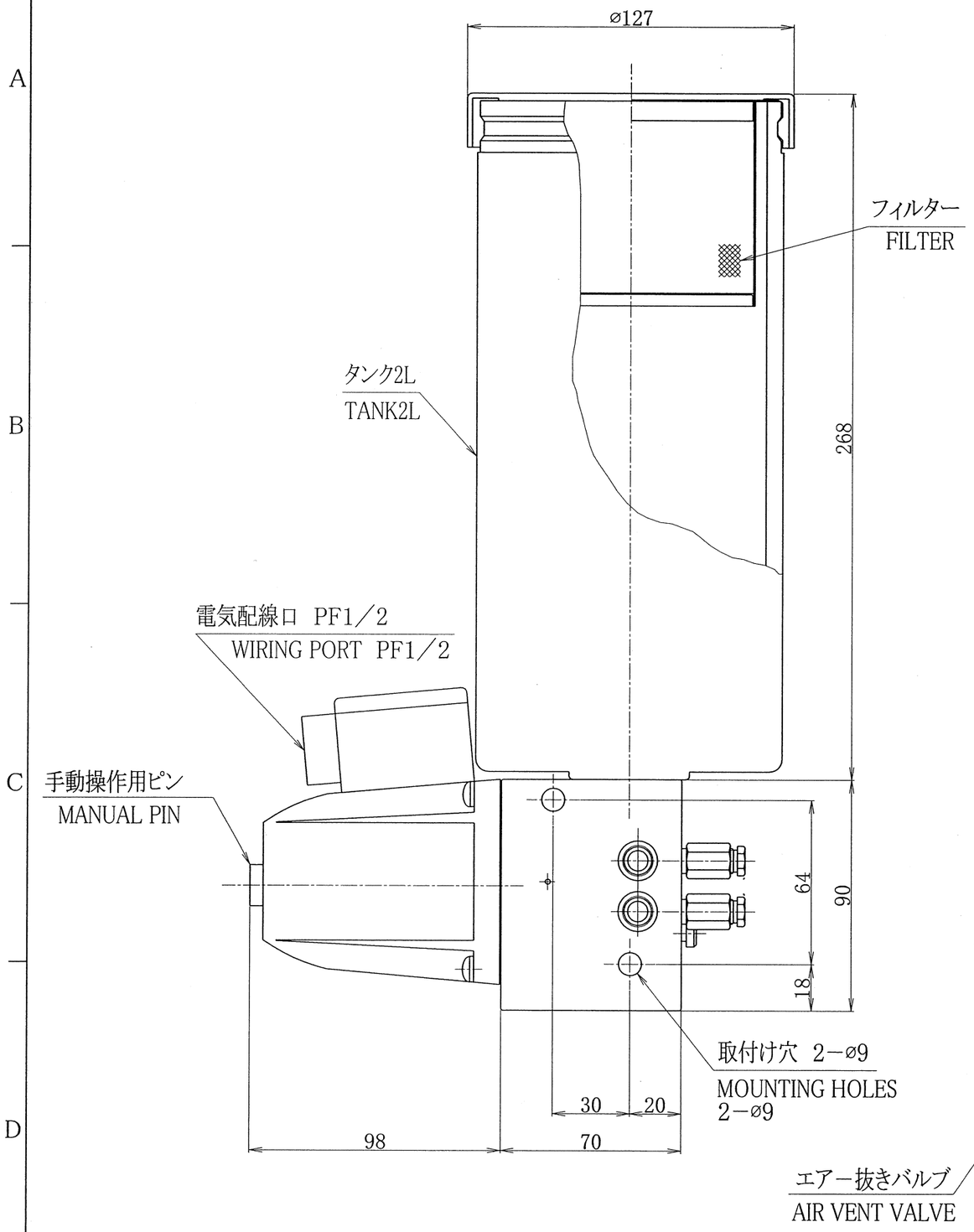

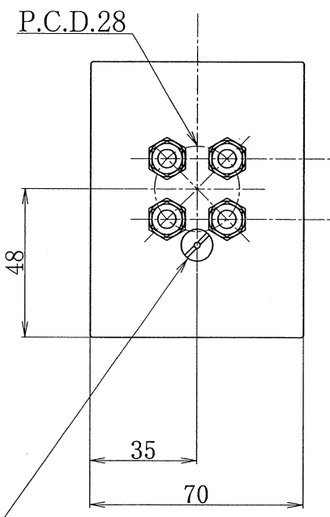

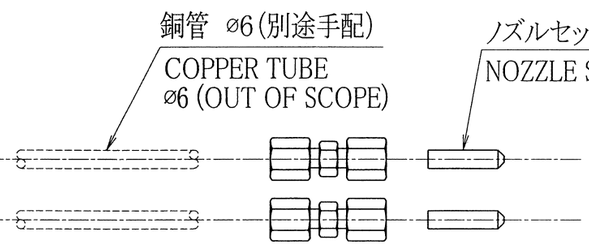

仕 様
SPECIFICATION

形 式 MODEL	KIP−121	KIP−141	KIP−122	KIP−142
吐出口 DISCHARGE PORT	2	4	2	4
吐出圧力 DISCHARGE PRESSURE	2.94 MPa (30 kgf／cm2)	1.47 MPa (15 kgf／cm2)	2.94 MPa (30 kgf／cm2)	1.47 MPa (15 kgf／cm2)
吐出量 DISCHARGE CAPACITY	0．04cm³／SHOT／1口			
動作回数 ACTUATING TIMES	MAX 2SHOTS／SEC			
ノズル数 NUMBER OF NOZZLE	2	4	2	4
電源 POWER SUPPLY	AC100V		AC200V	
重量 WEIGHT	6．0kg			
付属品 ACCESSORIES	ボルト、ナット M8×100L 2セット BOLT & NUT M8×100L 2SETS			

ø6銅管長さは、1mまでとします。
PIPING DISTANCE (BETWEEN THE PUMP AND NOZZLE)
MAX.1m (COPPER TUBE ø6)

協議印

出図先

購買
製造
客先
控

複写部数 A3

出図日

CUSTOMER

SPECIFICATION

CHECKED BY	DRAWN BY
09.4.01	小 西
	2009.02.26
APPROVED BY	DESIGNED BY
	加 藤
09.4.28	2009.02.26

インジェクションポンプ
INJECTION PUMP

KOWA CORP.
OSAKA JAPAN

DWG.No. KIP−121(タンク有) △0

CFD.No.

CODE No.

3RD ANGLE PROJECTION

SCALE 1/2(A3)

DATE OF ISSUE

MFG.No.

5
(A3)

改訂REV	改定内容 DISCRIPTION	日付 DATE	担当SIGN
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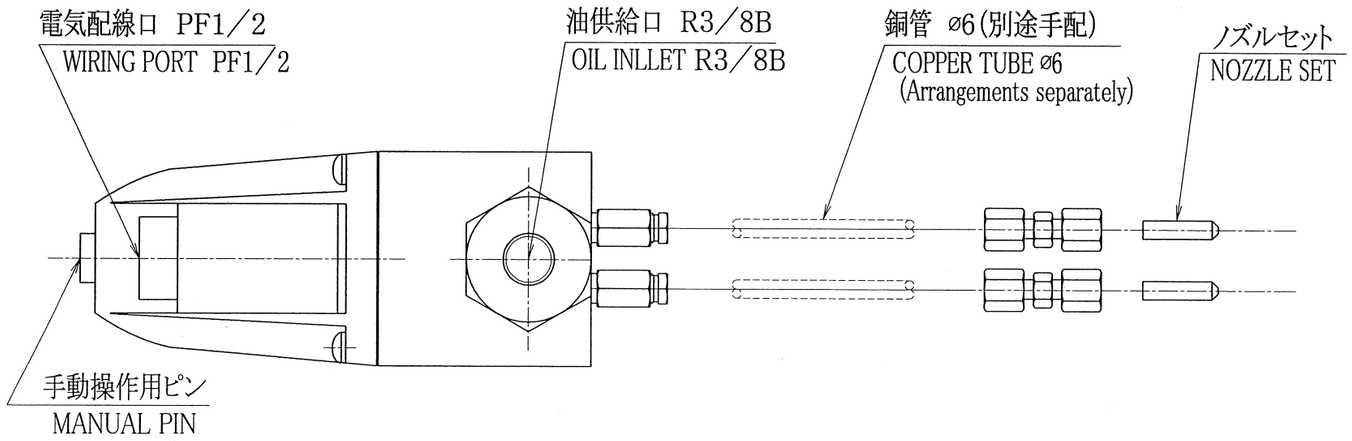

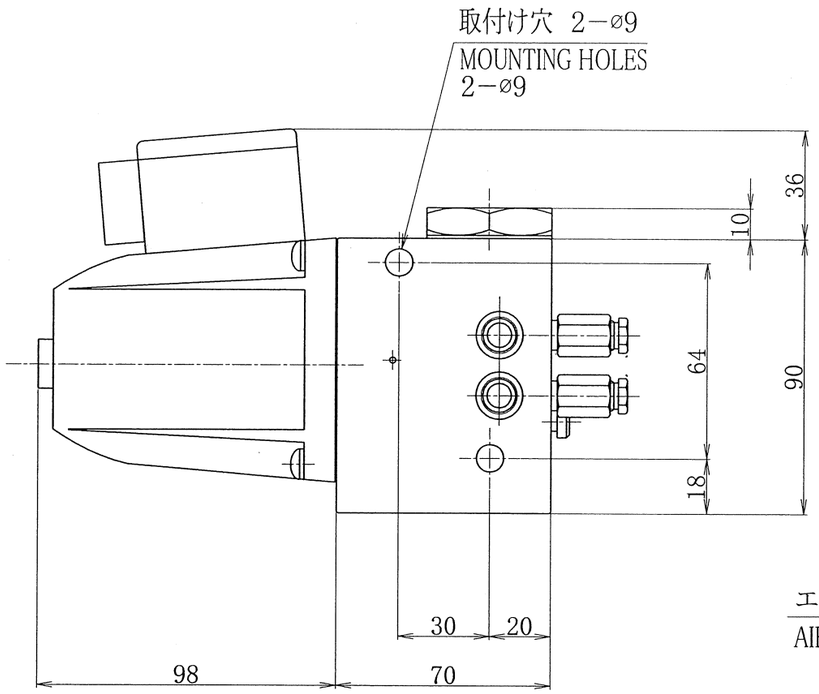

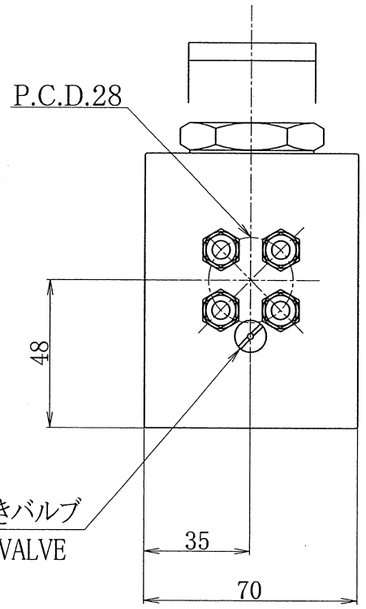

仕 様
SPECIFICATION

形 式 MODEL	KIP－121	KIP－141	KIP－122	KIP－142
吐出口 DISCHARGE PORT	2	4	2	4
吐出圧力 DISCHARGE PRESSURE	2.94 MPa (30 kgf／cm2)	1.47 MPa (15 kgf／cm2)	2.94 MPa (30 kgf／cm2)	1.47 MPa (15 kgf／cm2)
吐出量 DISCHARGE CAPACITY	0．04cm³／SHOT／1口			
動作回数 ACTUATING TIMES	MAX 2SHOTS／SEC			
ノズル数 NUMBER OF NOZZLE	2	4	2	4
電源 POWER SUPPLY	AC100V		AC200V	
重量 WEIGHT	4．7kg			
付属品 ACCESSORIES	ボルト、ナット M8×100L 2セット BOLT & NUT M8×100L 2SETS			

ø6銅管長さは、1mまでとします。
PIPING DISTANCE (BETWEEN THE PUMP AND NOZZLE)
MAX.1m (COPPER TUBE ø6)

協議印
出図先
購買
製造
客先
控
複写部数
A3
出図日

CUSTOMER
SPECIFICATION

CHECKED BY	DRAWN BY
藤	小 西
	2009.02.26
APPROVED BY	DESIGNED BY
宮 09.4.28	加 藤
	2009.02.26

インジェクションポンプ
INJECTION PUMP

KOWA CORP.
OSAKA JAPAN

DWG.No. KIP-121(タンク無) △0
CFD.No.
CODE No.
3RD ANGLE PROJECTION
SCALE 1/2(A3)
DATE OF ISSUE
MFG.No.

5
(A3)

改訂REV	改定内容 DISCRIPTION	日付 DATE	担当SIGN
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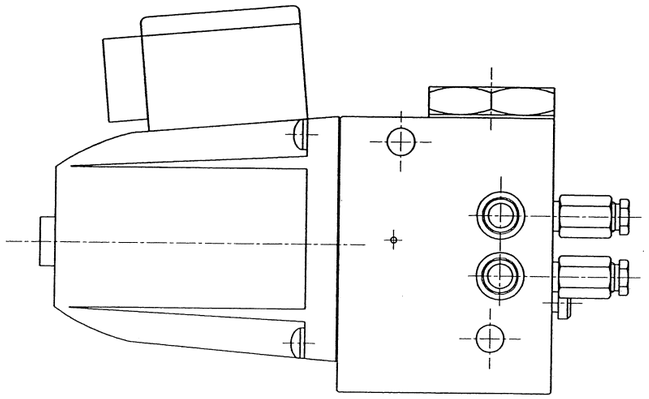
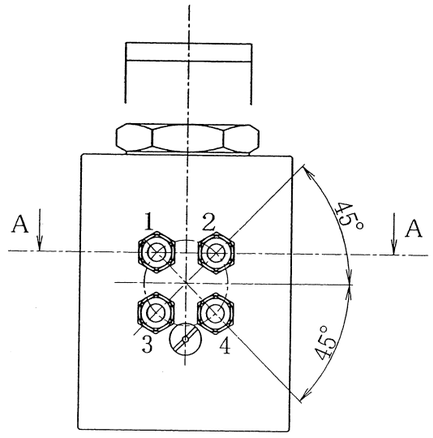
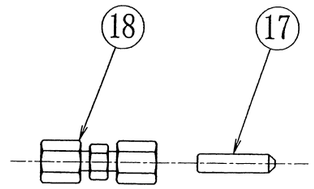
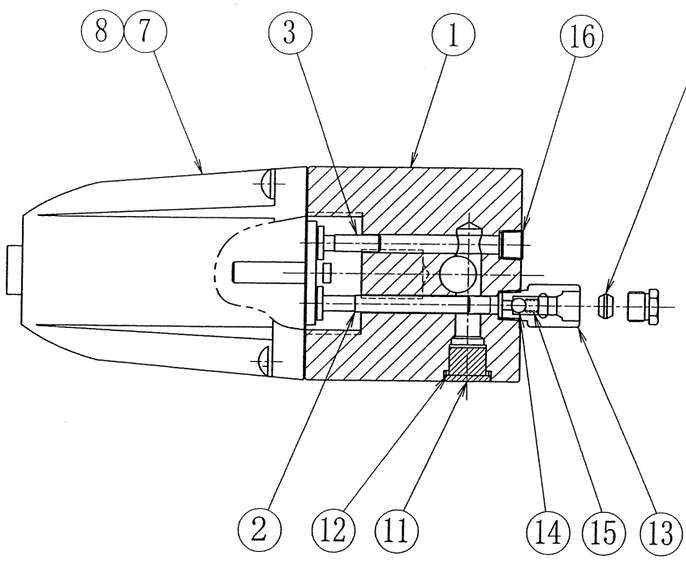




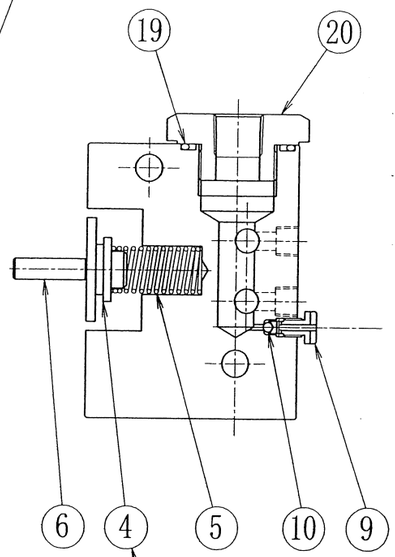
2口の場合は2、3をプラグの事



スリーブ、ナットを付属の事



A-A断面



ロッド及びプランジャーの
当たり面にグリース塗布の事

2	2	2	2	22	六角ナット(付属品)		SS400		M8
2	2	2	2	21	六角ボルト(付属品)		SS400		M8×100
1	1	1	1	20	吸込口継手	T2105	C3602		KS800552
1	1	1	1	19	Oリング	Z1117	NBR		1BP32
2	4	2	4	18	銅管ユニオン(付属品)		C2700		ø6
2	4	2	4	17	ノズル(付属品)		C2700		FP1183
2		2		16	六角穴付プラグ	Z5001	SS400		1/8B
2	4	2	4	15	スプリング	X1004	SWP		
2	4	2	4	14	鋼球		SUJ2		3/16B
2	4	2	4	13	逆方向逆止弁(SS継手)		C3603		
2	2	2	2	12	銅ワッシャー	X3008			M12
2	2	2	2	11	座付きプラグ	X2007			M12×10
1	1	1	1	10	鋼球	Z2001	SUJ2		1/8B
1	1	1	1	9	エアー抜きビス	X1005	SS400		KS800124
		1	1	8	ソレノイド(AC200V)				SM-6A-52
1	1			7	ソレノイド(AC100V)				SM-6A-52
1	1	1	1	6	ロッド		SUS304		FP1184
1	1	1	1	5	リターンスプリング		SWP-B		FP1181
1	1	1	1	4	プランジャーリテーナ		SS400		FP1182
2		2		3	プランジャー(短絡用)		SCM315		FP1180
2	4	2	4	2	プランジャー		SCM315		FP1179
1	1	1	1	1	KIP-1 本体		S35CF		FP1178
数量				品番	名称	CNO	材質	重量	備考	

KIP-121	KIP-141	KIP-122	KIP-142
形式			

CUSTOMER

SPECIFICATION

DRAWN BY	CHECKED BY	APPROVED BY
小西 2009.02.26	09.4.01	
加藤 2009.02.26		09.4.28

インジェクションポンプ KIP-1 組立図

KOWA CORP.
OSAKA JAPAN

DWG.No. SA-KIP-1 △0

CFD.No.

CODE No.

3RD ANGLE PROJECTION

SCALE 1/2(A3)

DATE OF ISSUE

MFG.No.

協議印

出図先

購買

製造

客先

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複写部数

A3

出図日

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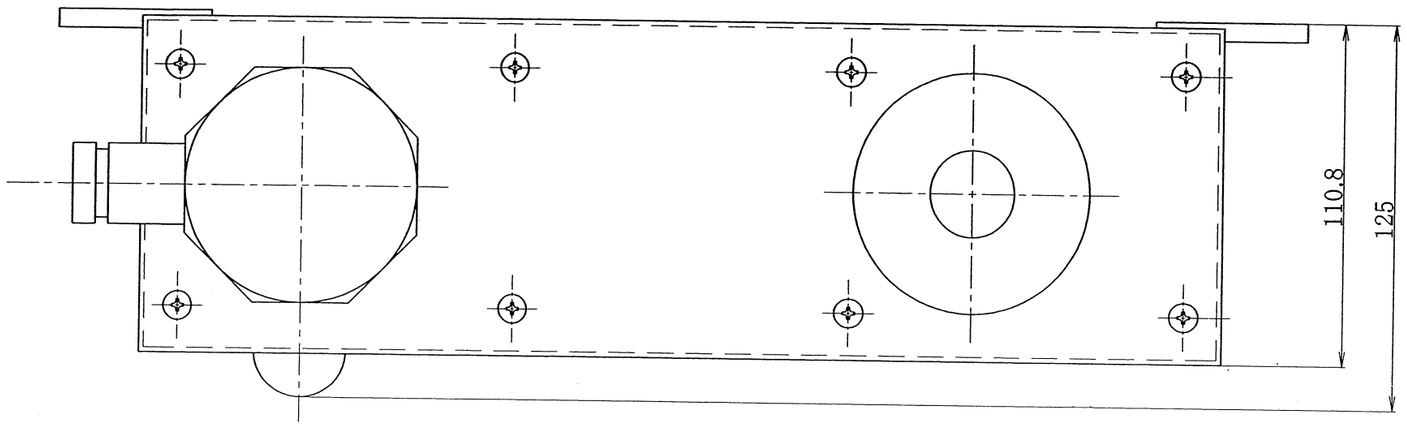

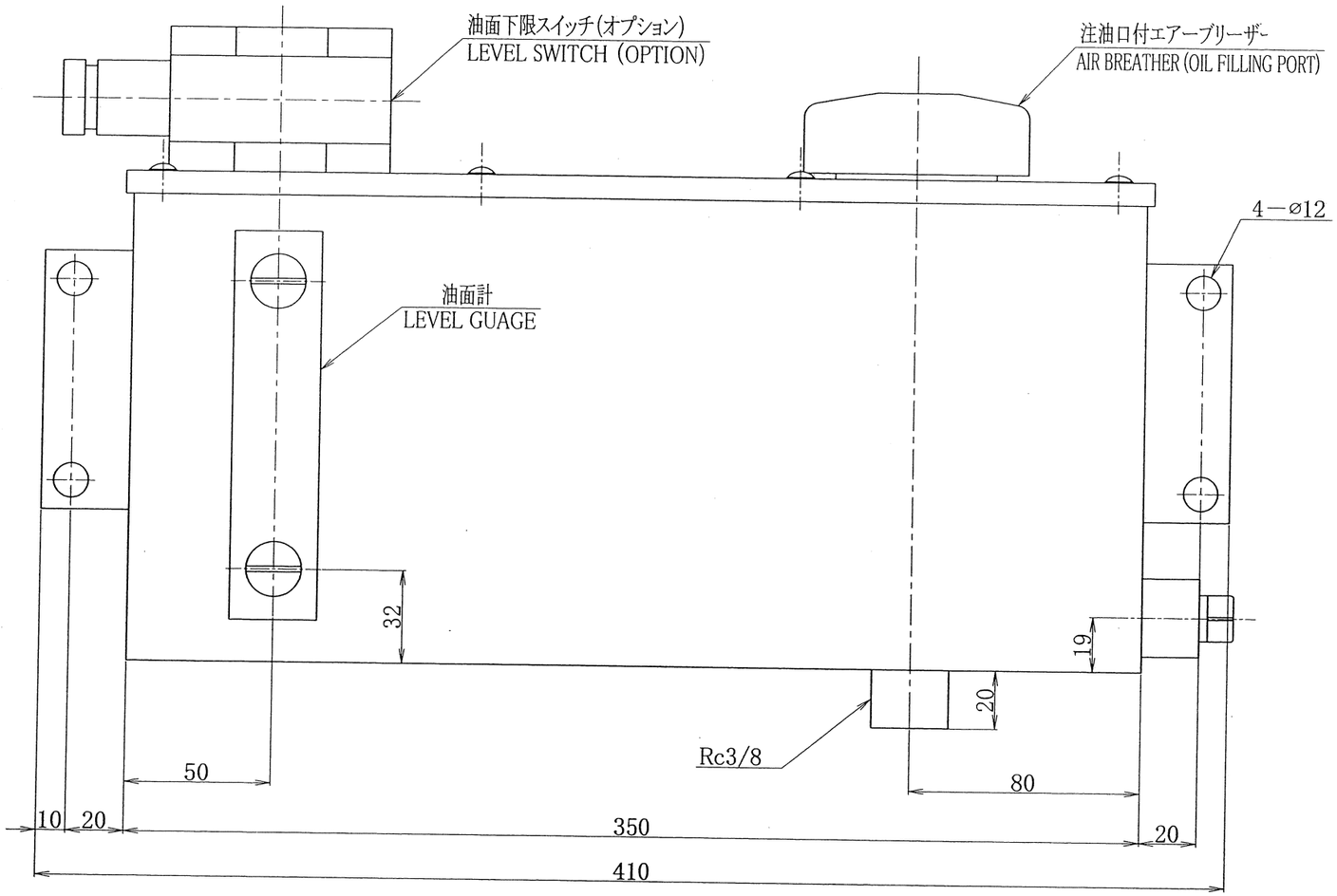

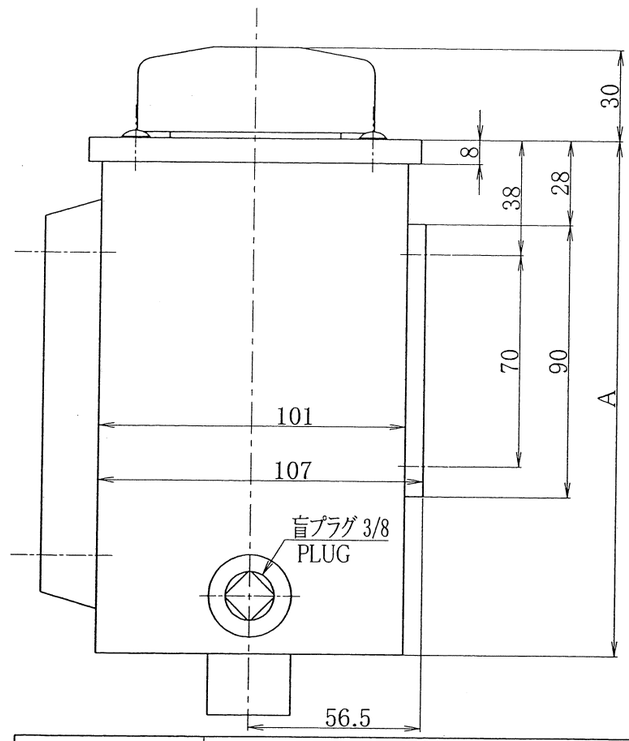

形 式
MODEL

形 式 MODEL	タンク容量 TANKAGE	A	油面下限スイッチ LEVEL SWITCH	質量(kg) Mass(kg)
T5	5	170	×	3.5
T5-L	5	170	○	3.5
T10	5	330	×	5.4
T10-L	5	330	○	5.4

塗装色： 2.5G6/2 (タンク内面無塗装)
Paint : 2.5G6/2 (Tank inside:No paint)

付属品： ボルト、ナット M10×25L 4セット
バルブ3/8B ×1 ニップル3/8B ×1
Accessory: Bolt、Nat M10×25L 4set
Valve3/8B ×1 Nipple3/8B ×1

CUSTOMER	
SPECIFICATION	

CHECKED BY	DRAWN BY
	小 西
	2009.02.26
APPROVED BY	DESIGNED BY
09.4.28	加 藤
	2009.02.26

5Lオイルタンク外形図
5L OIL TANK

KOWA CORP.
OSAKA JAPAN

DWG.No. KIP-5L-TANK △0
CFD.No.
CODE No.

3RD ANGLE PROJECTION | SCALE 1/2(A3)
DATE OF ISSUE | MFG.No.

協議印
出図先
購買
製造
客先
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複写部数
A3
出図日

5
(A3)

改訂REV	改定内容 DISCRIPTION	日付 DATE	担当SIGN
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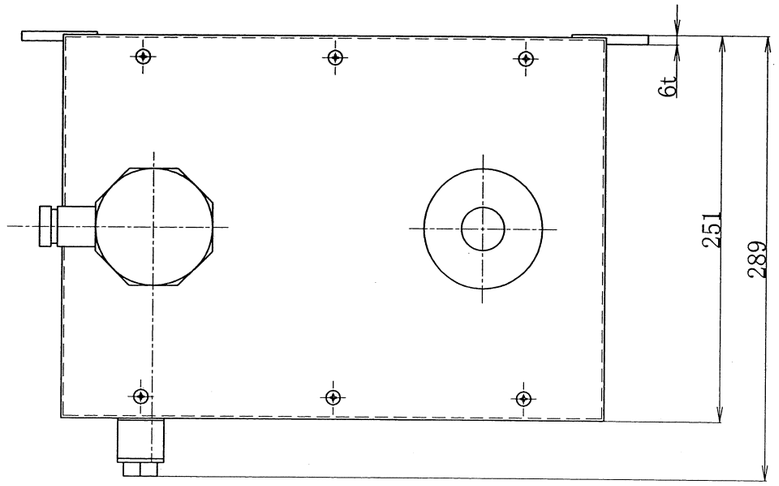

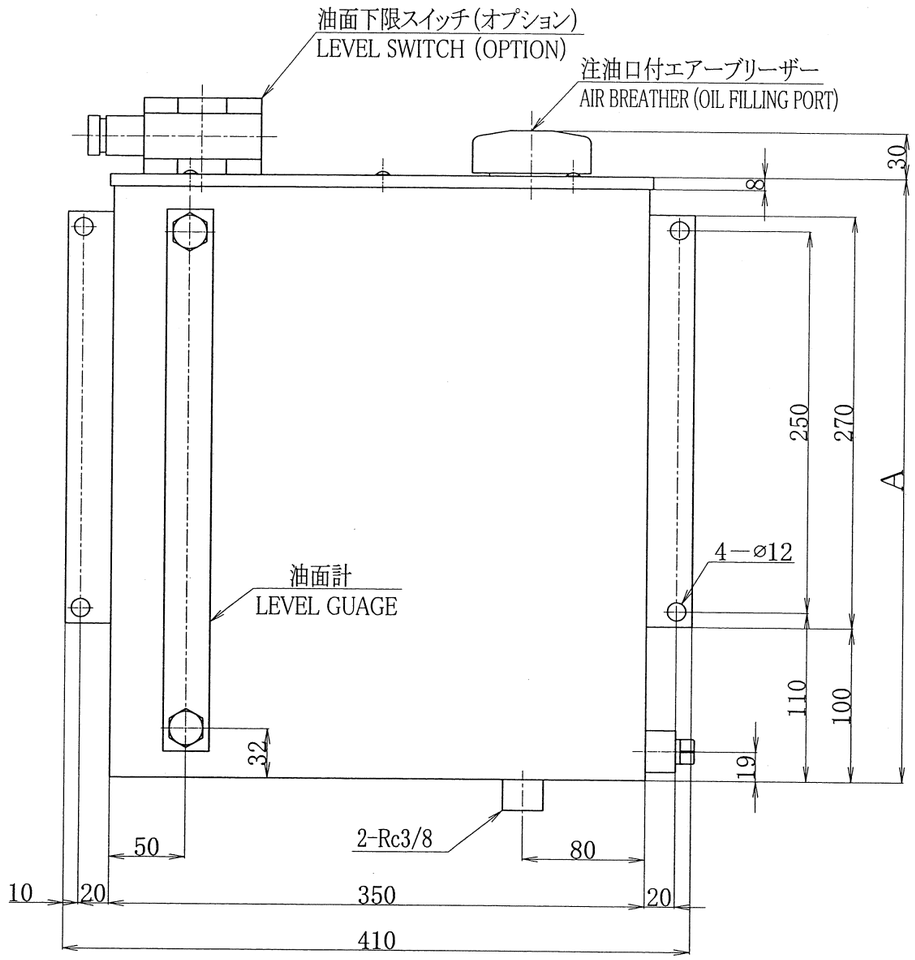

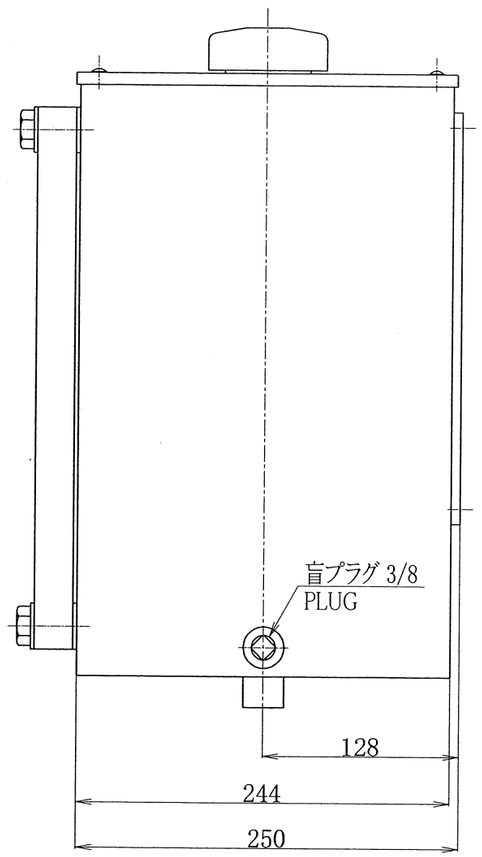

塗装色: 2.5G6/2 (タンク内面無塗装)
Paint : 2.5G6/2 (Tank inside:No paint)

付属品: ボルト、ナット M10×25L 4セット
バルブ3/8B ×1 ニップル3/8B ×1
Accessory: Bolt、Nat M10×25L 4set
Valve3/8B ×1 Nipple3/8B ×1

質 量: 13.7kg
Mass : 13.7kg

CUSTOMER	
SPECIFICATION	

CHECKED BY	DRAWN BY
	小 西
	2009.02.26
APPROVED BY	DESIGNED BY
宮	加 藤
09.4.28	2009.02.26

30Lオイルタンク外形図
30L OIL TANK

KOWA CORP.
OSAKA JAPAN

DWG.No. KIP-30L-TANK △0
CFD.No.
CODE No.
3RD ANGLE PROJECTION
SCALE 1/4(A3)
DATE OF ISSUE
MFG.No.

協議印
出図先
購買
製造
客先
控
複写部数
A3
出図日

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(A3)

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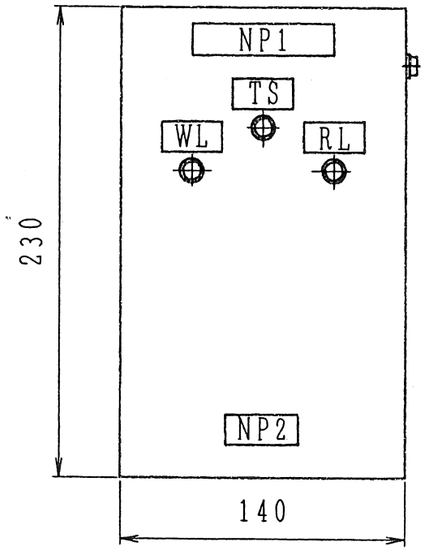
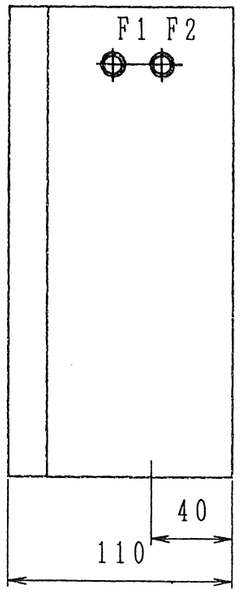
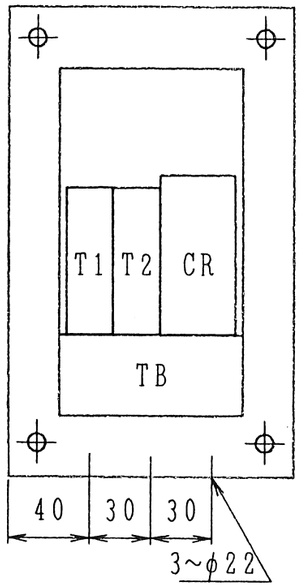




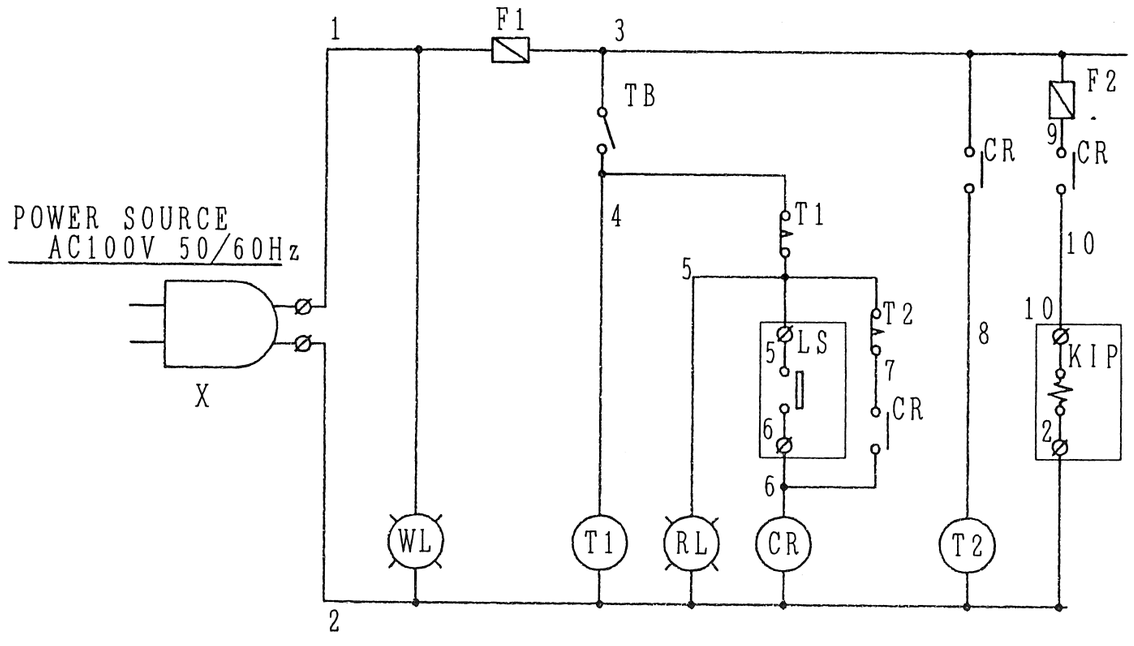


NAME PLATE LIST

No.	DESIGNATION
WL	POWER
RL	DRIVE
TS	STOP
NP1	CONTROL PANEL FOR CHAIN LUBRICATION
NP2	KWK

PARTS LIST

No.	PARTS NAME	MODEL	Q'TY	MAKER
WL	LAMP		1	
RL	LAMP		1	
TS	TOGGLE SWITCH		1	
T1	TIMER	H3Y-2 AC100V 50/60Hz	1	OMRON
T2	TIMER	H3Y-2 AC100V 50/60Hz	1	OMRON
CR	AUX. RELAY	LY-3 AC100V 50/60Hz	1	OMRON
F1	FUSE	20A	1	
F2	FUSE	10A	2	
TB	TERMINAR BOARD		1	
BOX	BOX	P-1	1	NITTO
LS	PROXIMITY SWITCH	TL-N20MY1 (WITH BRACKET)	1	OMRON
KIP	INJECTION PUMP	KIP-1	2	KOWA
X	OUTLET	AC100V WITH CABL (5m)		



CUSTOMER	
SPECIFICATION	
CHECKED BY / DRAWN BY	H. YASUDA, 7, SEP., '96
SEC. CHIEF / DESIGNED BY	

INJECTION PUMP (KIP-1)
CONTROL PANEL FOR CHAIN LUBURICATING

KOWA CORP.
OSAKA JAPAN

DWG. No. FT-1235 △
CFD. No. E13-ST001
CODE No.
3RD ANGLE PROJECTION
SCALE 1/3 (A3)