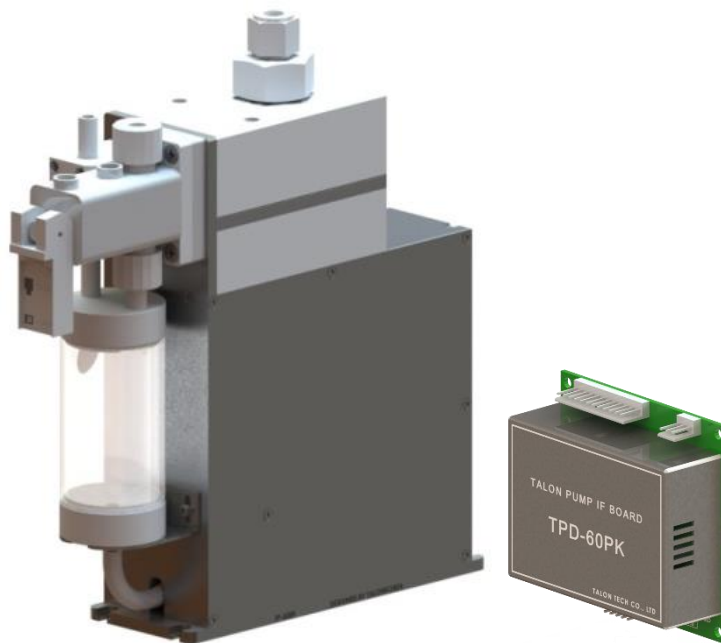


# PUMP MANUAL

MODEL : TP-60BR-PK

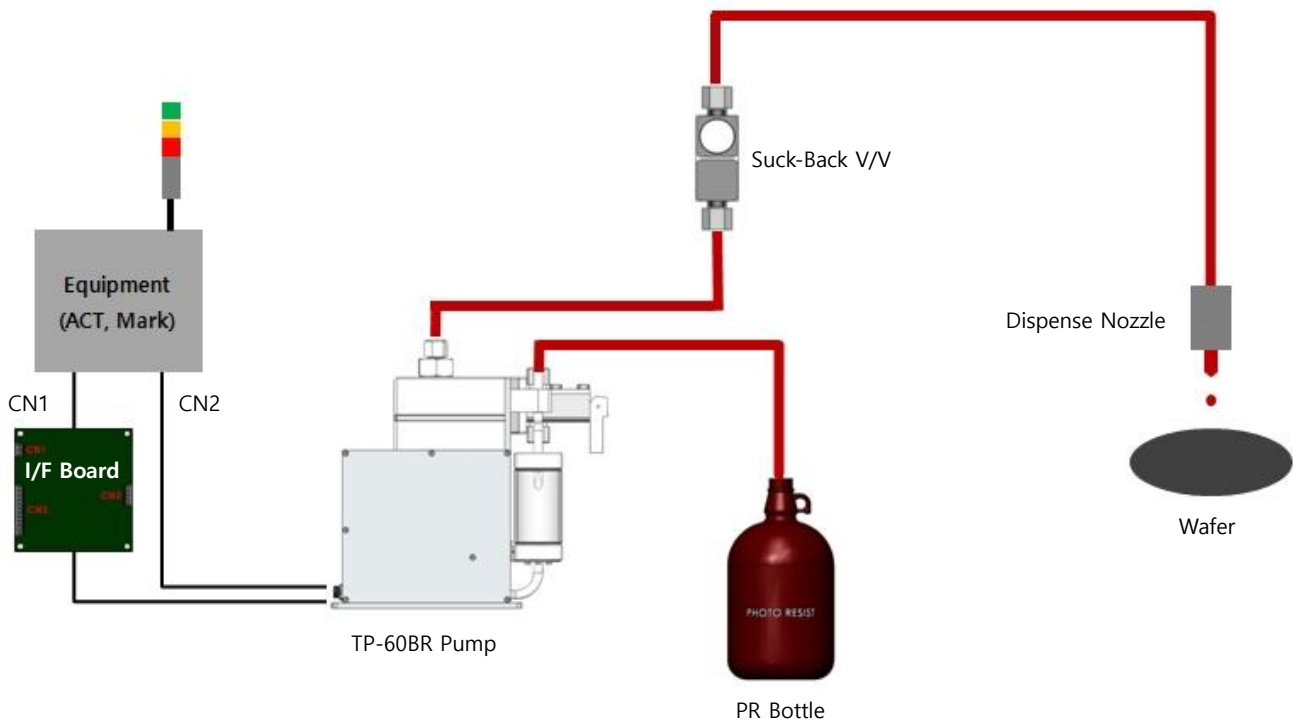


**TALON TECH CO. LTD.**

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# 1 System Configurations



TP-60BR pump can be used as the above configuration and has been developed conveniently to be compatible with Mark & ACT series systems. Especially, the adoption High resolution and High angular 5-Phase stepping motor is good for the high degree of PR dispense. Be careful to use the pump by following this manual or Talon Tech's acceptance. Or, other defects should be paid even under the warranty period.

## ※ Features & Merits

1. All the PR contacting points are made by Teflon.
2. It's the High Resolution and Highly Accurate 5phase steeping motor pump, which is suitable for a constant delivery pump.
3. Driving Method : Outer type Edgeless Bellows, No ripple & No shaking.
4. Save Maintenance Time : Purge function, optimized buffer.
5. Signal is same as RRC Pump. (ACT/MARK)

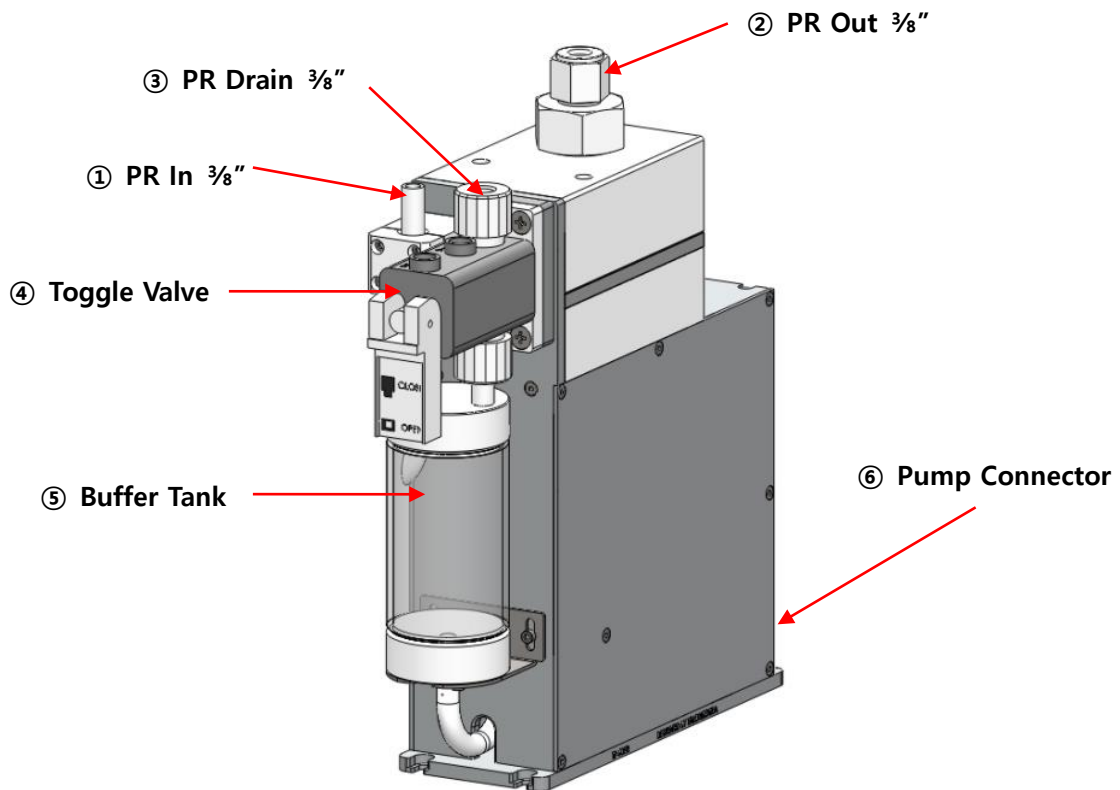
## 2 System Specifications

### 2-1 Pump [TP-60BR-PK]

ITEM	SPEC	RE
Dispense Volume Range	1.0cc ~ 10.0cc	
Dispense / Reload Rate	0.1cc/sec ~ 1.2c/sec	
Dispense Volume Resolution	0.05 cc	
Dispense Repeatability	$\leq \pm 0.05$ (2.2cp, 23°C)	
Viscosity	50cp ~ 10,000cp	
Step Angle Degree	0.18deg / step	
Input Pulse vs Dispense Volume	800 pulses(Full step) / 1cc	
Driver System	5-phasesetpping Motor Drive Current : 300 ~ 500mA/cycle	
Pump Type	Outer Type Edgeless Bellows	
Control System	Power : Motor Driver DC24V, Home Sensor DC5V	
Resist In/Out/Vent	$\frac{3}{8}$ Inch Teflon	
Ambient Temperature	5 ~ 40 °C	
Weight	5.0kg	
Pump Dimension	W : 72mm, D : 299mm, H : 296mm	

## 3 System In/Exterior Names

### 3-1 Pump In/Exterior Names



#### 3-1-1 Pump Name Explanation

- ① **PR In**
  - Chemical Supply. (3/8 Inch Teflon)
  - ※ Tube length must not exceed 1.2 meters.
- ② **PR Out**
  - Chemical Dispense. (3/8 Inch Teflon)
- ③ **PR Drain**
  - Chemical Drain. (3/8 Inch Teflon)
- ④ **Toggle Valve**
  - One Touch Toggle Valve for chemical drain
- ⑤ **Buffer Tank**
  - Bubble removal and buffering function of about 30cc PR
- ⑥ **Pump Connector CN1, CN2**
  - CON-1(Motor) => Connector for pump operation. (Round Panel Mount 5P Female)
  - CON-2(Track) => Connector for pump operation. (Round Panel Mount 8P Female)

**3-2 Talon Pump I/F Board Exterior Names**



① CN1 Connector(3pin)

CN1			
Pin NO.	Signal Name	Color	Description
1	+24V	Brown	DC 24V ±10%
2	G24	Red	
3			

② CN2 Connector(12pin)

CN2			
Pin NO.	Signal Name	Color	Description
1	CW+	Brown	Line Driver Input
2	CW-	Red	
3	CCW+	Orange	
4	CCW-	Yellow	

③ CN3 Connector(5pin)

CN3			
Pin NO.	Signal Name	Color	Description
1	A	Brown	5PHASE STEPPING Motor
2	B	Red	
3	C	Orange	
4	D	Yellow	
5	E	Green	

- Applicable contacts and connector housings ( Maker : TE )

CN1	Connector Housings	171822-3
	Contacts	170262-1
CN2	Connector Housings	1-171822-2
	Contacts	170262-1
CN3	Connector Housings	171822-5
	Contacts	170262-1

## 4 Wiring & Signal Interface

### 4-1 CN-1 Pin Assign [Motor Cable]

Pin Assign (ACT & MARK)			
Pin NO.	Signal Name	Color	Description
A	A	Blue	5PHASE STEPPING Motor
B	B	Red	
C	C	Orange	
D	D	Green	
E	E	Black	

### 4-2 CN-2 Pin Assign [Track Cable]

Pin Assign (ACT & MARK)			
Pin NO.	Signal Name	Color	Description
A	EA+	Red	Encoder A Phase Output
B	EA-	Brown	
C	EB+	Green	Encoder B Phase Output
D	EB-	Blue	
E	G5/LGC	Black	GND
F	Home Sensor	White	Output(Open Collector), 5VDC, 1c=100mA
G	+5V/LGC	Red	+5V $\pm$ 0.25V / 0.2A
H	TH S/W	Green	GND

## 5 Maintenance

### 5-1 Pump Parts Dis/Assembly

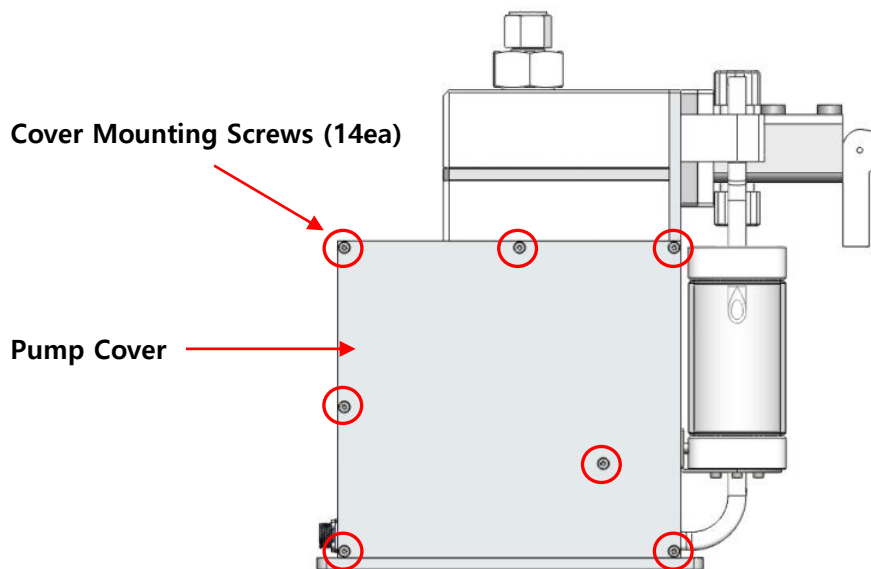
#### 5-1-1 Pump Cover Dis/Assembly

1. As per the below [PIC 1], use 2mm wrench to release Pump Cover Mounting M3 Screw(14ea) to open the cover.
2. The assembly is the reverse order of the disassembly.

**[Notice]**

**When the cover opens, be careful not to cut the finger.**

**Don't dis/assemble the interior parts inside the pump.**



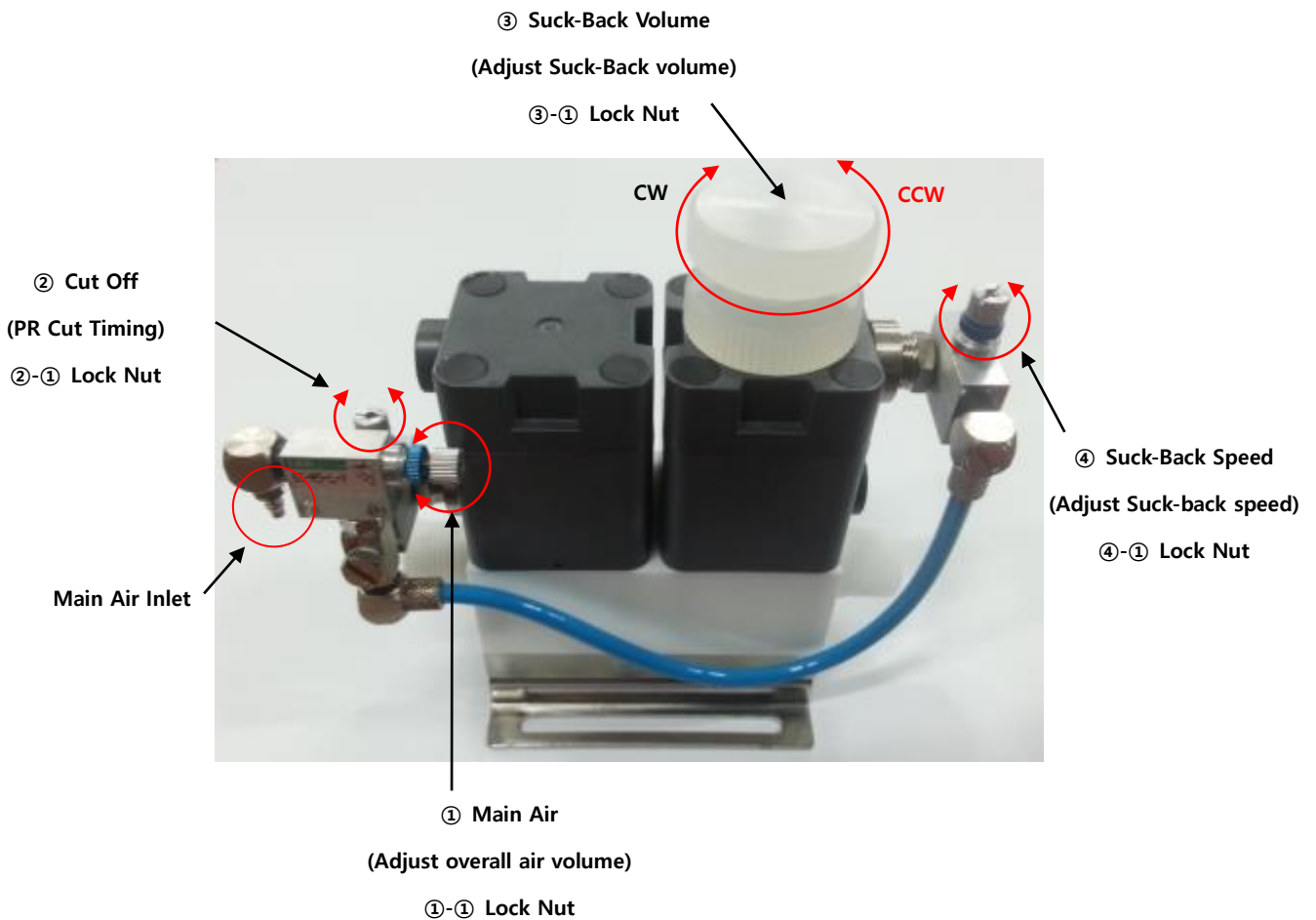
[PIC 1]

#### 5-1-2 Driving Shaft Condition Check & Grease up on Ball Screw

1. Check the motor's vibration & noise when the pump works.
2. Check the bolts & belt tightening condition and ball screw worn-out condition.
3. Check any interruption between cables & moving parts.
4. Check the conditions of linear bushing /shaft when the pump works.
5. Grease up on ball screw & LM linear bushing.
6. Grease up every 6 months.



## 5-2 Suck-Back Setting



1. Un-fasten Lock Nut②-①, ③-① and fasten the knob ②, ③ make it close perfectly.
2. Once Dispense signal is on, un-fasten lock-nut①-① to dispense PR and adjust speed control knob①  
(Want to delay dispense timing rotate the knob to CW, want to make quick dispense rotate CCW)
3. Once Dispense signal going "Off" please un-fasten Lock nut④-① for consume the liquid just 1mm ahead of nozzle, rotate speed control knob④ and adjust.
4. Un-fasten Lock Nut②-① and close speed control knob②, rotate 2 times toward CCW.
5. Un-fasten Lock Nut③-① and rotate the suck-back control knob③, resist in nozzle will move up and down. Please make resist place about 3mm from nozzle tip.  
(Increase Suck-Back flow, turn CW, decrease suck-back flow, turn CCW)
6. Un-fasten Lock Nut②-① and after 1 sec open the operate suck-back, make the suck-back about 2mm in 1 sec to rotate the speed control knob②.

7. If Suck-Back Speed ④ is too fast, turn it CW, too slow, turn it CCW.
8. Fasten every knob's lock nut. (①-①, ②-①, ③-①, ④-①)
9. Dispense resist again to final check.
10. If value is not correct, go back to order NO.3.

● **REFERENCES FOR WORKING SEQUENCE**



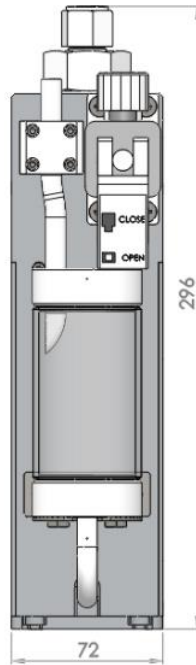
## 6 Recommended Spares / Mechanical Dimensions

### 6-1 TP-60BR Spare Parts

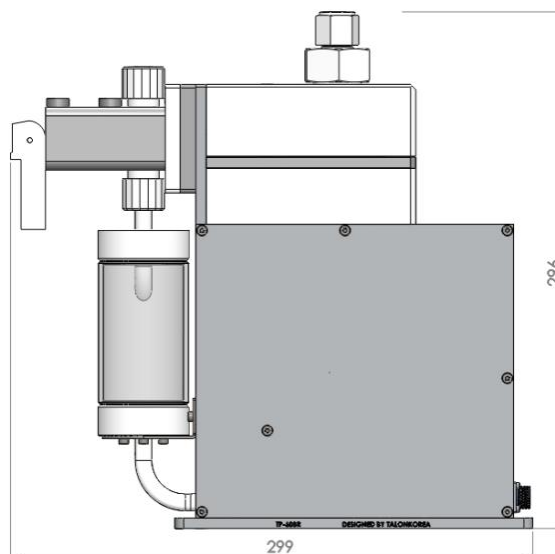
Division	Part NO.	Description	Qty
Pump	TL-60BR-TA-001	Cylinder	1
	TL-60BR-TA-002	Outer Type Edgeless Bellows	1
	TL-60BR-CA-001	Toggle Valve	1
	TL-60BR-TA-003	Nut	1
	TL-60BR-TA-004	¾" Fitting Nut	1
	TL-60BR-TA-005	Out Cap	1
	TL-60BR-TA-006	Buffer Tank Ass'y	1
	TL-60BR-MA-001	Ball Screw	1
	TL-60BR-MA-002	Support Unit	1
	TL-60BR-PK-EB-001	Motor	1
	TL-60BR-MA-003	LM Guide	1
	TL-60BR-ET-001	Timing Belt	1
	TL-60BR-ET-003	O-Ring (Bellows)	1
	TL-60BR-ET-004	O-Ring (Out Cap)	1
	TL-60BR-EA-001	Photo Sensor	2
	TL-60BR-CA-003	Suck-Back Valve	1
	Talon Pump I/F Board	TL-60BR-EB-003	Talon Pump I/F Board (Rev7.0)

## 6-2 Pump Dimensions

### 6-2-1 Front View



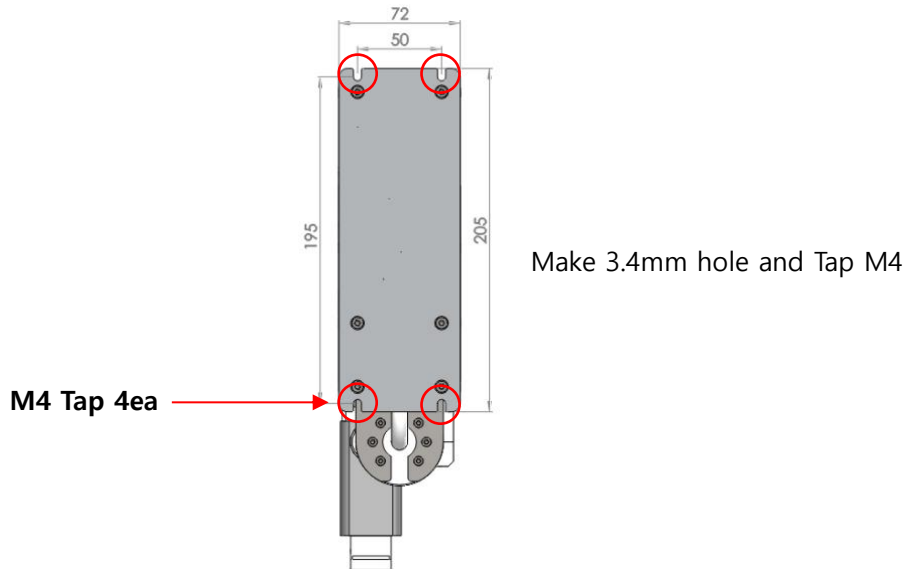
### 6-2-2 Side View



## 6-3 Installation Method

### 6-3-1 Pump Installation Sequence

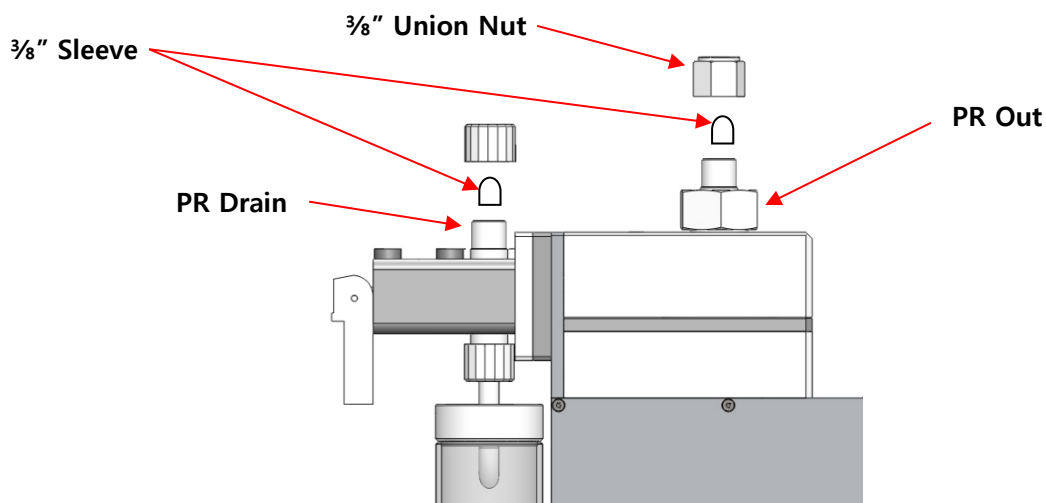
1. Prepare the space for the pump installation.
2. As per the below picture, tighten the panel base plate with 4 pieces of M4 screw.



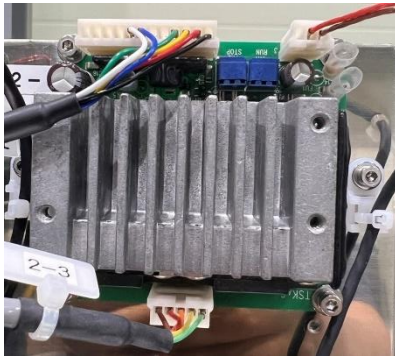
### 6-3-2 Piping Method

#### 1. PR Tube Piping

- 1) Insert  $\frac{3}{8}$ " union nuts on tube at PR In / Out / Vent areas.
- 2) 2) When "PR IN" is connected, the tube length must be less than 1.2meters.
- 3) At the vent area, insert  $\frac{3}{8}$ " sleeve into tube after enlarging tube with the tube expansion tool and then tighten nut.



### 6-3-3 Cable Connection Method [Mark / ACT Type]



RRC Motor Driver (CSD5807)



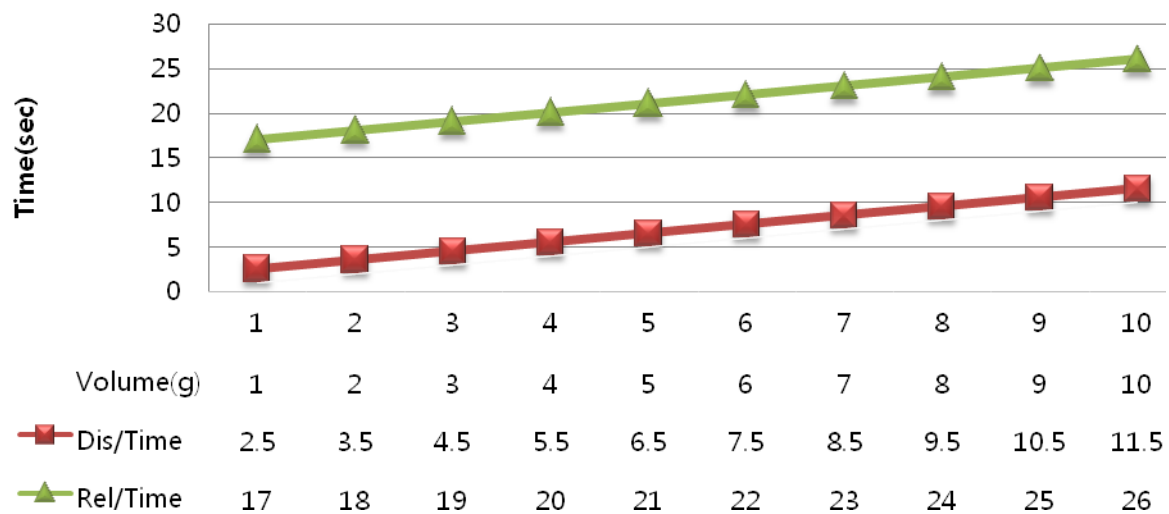
Talon Pump IF Board (REV7.0)

1. De-install RRC pump and install TP-60BR-PK Pump.  
(CN1 & CN2 Connectors are connected same.
2. De-install RRC Driver (CSD5807) and install Talon Pump I/F Board(Rev7.0).
3. RRC Motor Driver's Connector CN1, CN2, & CN3 are connected same.
4. After power on the track, check out the pump working status.

**6-3-4 Suggested Recipe Setting Value (PR viscosity: 1,800cP standard)**

Volume(g)	Data Input	Dispense/Time	Data Input	Reload/Time	Data Input
1	100	2.5	250	17	1700
2	200	3.5	350	18	1800
3	300	4.5	450	19	1900
4	400	5.5	550	20	2000
5	500	6.5	650	21	2100
6	600	7.5	750	22	2200
7	700	8.5	850	23	2300
8	800	9.5	950	24	2400
9	900	10.5	1050	25	2500
10	1000	11.5	1150	26	2600

**Suggested setting value as per time**



※ The above data is based on 1,800cP. It is supposed to be changed upon cP.

<THE END>