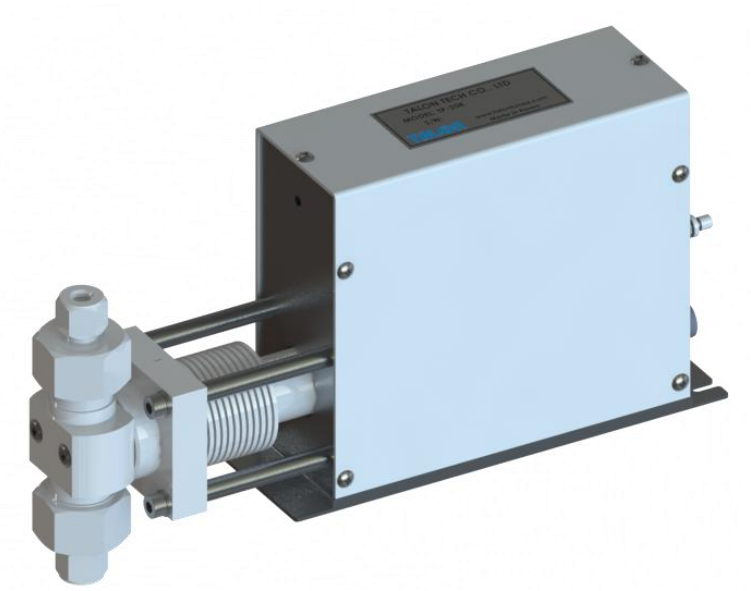
Stable 5 phase step motor controls for constant dispenses **RRC Signal Pump**

PUMP MANUAL

MODEL : TP-20R



TALON TECH CO. LTD.

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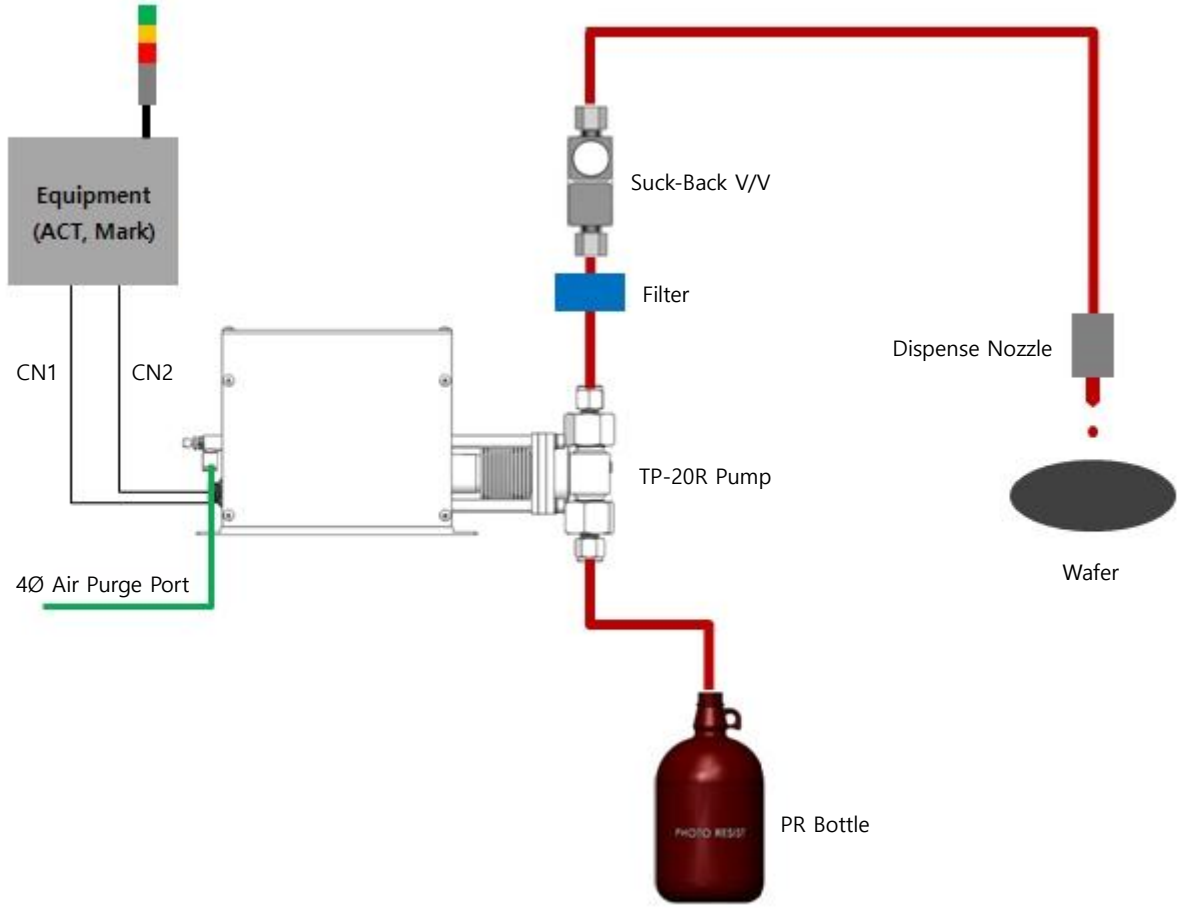
1 System Configurations



TP-20R pump can be used as the above configuration and has been developed conveniently to be compatible with Mark & ACT series systems.

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. Dispense Method : Inner type Bellows, No ripple, & No shaking.
3. Discharge & Control Method : 5 phase step motor controls with stable.
4. Signal is same as RRC Pump. (ACT/MARK)

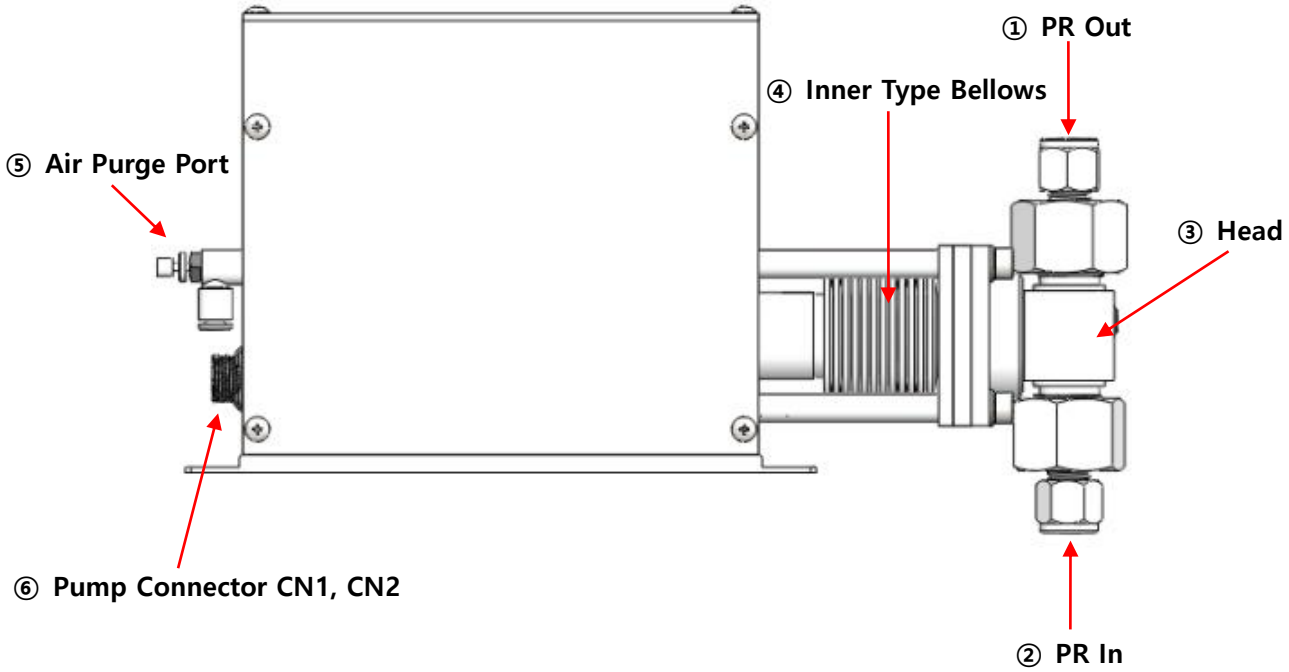
2 System Specifications

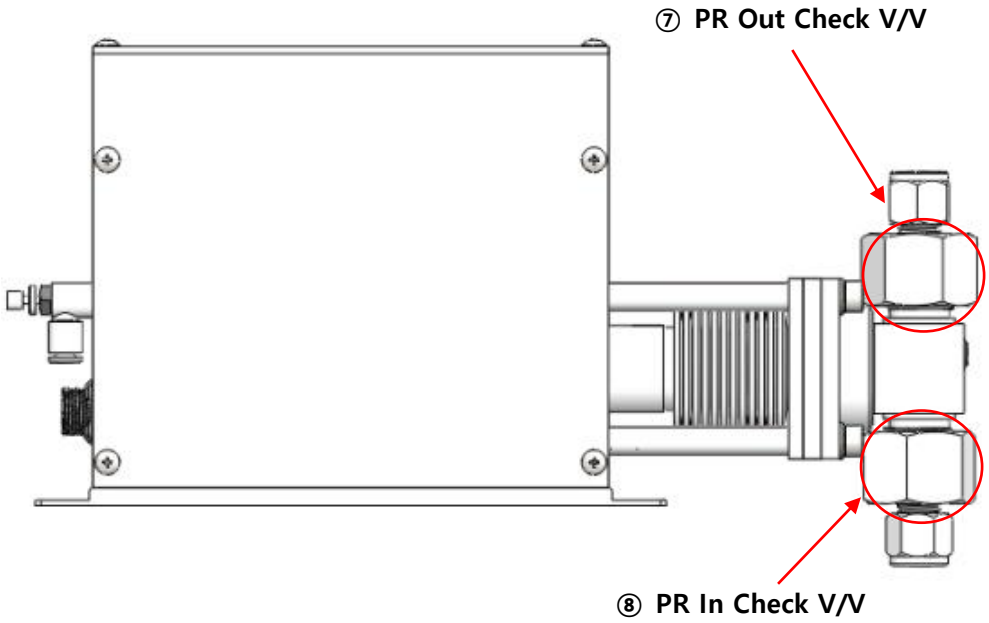
2-1 Pump [TP-20R]

ITEM	SPEC	REMARKS
Dispense Volume Range	0.5cc ~ 8.0cc	
Dispense / Reload Rate	0.1cc/sec / 4.0cc/sec	
Dispense Volume Resolution	±0.05cc	
Dispense Repeatability	≤±0.05 (2.2cp, 23℃)	
Viscosity	Max : 200cp	
Pump Driving Type	5-Phase Stepping Motor Driver Current : 300~500mA/Cycle	
Control System Power	Motor Driver : DC24V, Home Sensor : DC5V	
Input Pulse VS Dispense Volume	812pluse(full step)/ 1cc	
Input Pulse VS Encoder Output Pulse	Full Step-1:1, Half Step-2:1	
Resist In/Out	¼ Inch Teflon	
Weight	1.76kg	
Pump Dimension	W : 56mm, L : 258mm, H : 127mm	

3 System In/Exterior Names

3-1 Pump In/Exterior Names





3-1-1 Pump Name Explanation

① **PR Out**

- Chemical dispense. (¼ Inch Teflon)

② **PR In**

- Chemical supply. (¼ Inch Teflon)

③ **Head**

- the middle area of PR In/Out

④ **Inner Type Bellows**

- Inner type bellows for PR dispense

⑤ **Air Purge Port**

- Air Cooling function (4Ø Air Tube)

⑥ **Pump Connector CN1, CN2**

- CN1 (Encoder) : connector for pump driving (round panel mount 5P Male)
- CN2 (Track) : connector for pump driving (round panel mount 8P Male)

⑦ **PR Out Check V/V**

- check valve for on/off at PR outlet

⑧ **PR In Check V/V**

- check valve for on/off at PR inlet

4 Wiring & Signal Interface

4-1 CN2 Pin Assign [Encoder & Sensor Cable]

ACT / Mark Type		
Pin NO.	**Signal Name**	**Description**
A	EA+	Encoder A Phase Output
B	EA-	
C	EB+	Encoder B Phase Output
D	EB-	
E	GND	GND
F	Home Sensor	Output (Open Collector), 5VDC, 1c=100mA
G	+5V Power Input	5V ±0.25V / 0.2A
H	GND	GND

4-2 CN1 Pin Assign [Motor Cable]

ACT / Mark Type		
Pin NO.	**Signal Name**	**Description**
A	Blue	5-Phase Stepping Motor
B	Red	
C	Orange	
D	Green	
E	Black	

5 Maintenance

5-1 Pump Parts Dis/Assembly

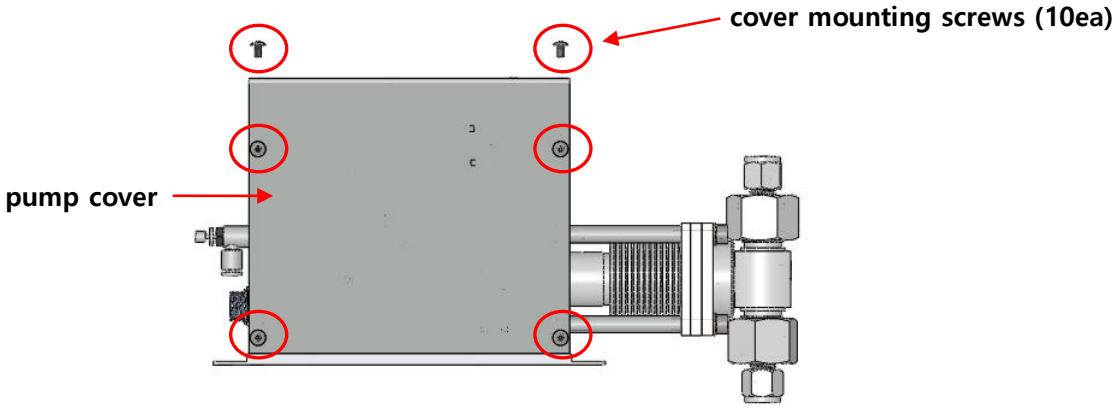
5-1-1 Pump Cover Dis/Assembly

1. Open the cover by loosening the pump cover mounting screw (10ea) with screw driver (+) as the below [PIC 1].

[Notice]

Be careful not to cut the fingers on cover open.

Don't disassemble the drive shaft parts inside the pump.



[PIC 1]

5-1-2 Driver Shaft Condition Check & Grease up on Ball screw

1. Check the motor's vibration & noise when the pump works.
2. Check the bolts 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.

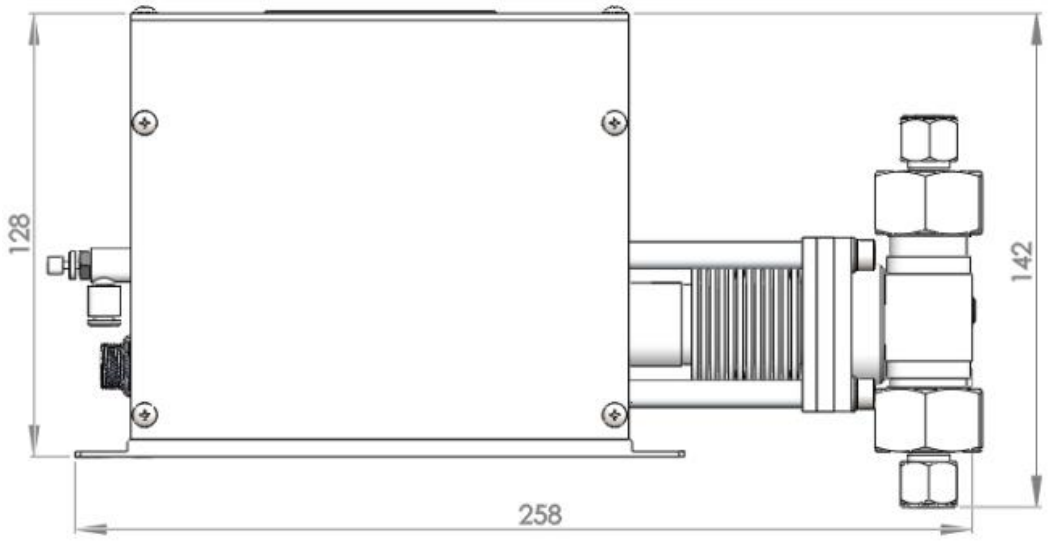
6 Recommended Spares / Mechanical Dimensions

6-1 TP-20R Spare Parts

Division	Part NO.	Description	Qty
Pump	TL-20R-TA-001	Head	1
	TL-20R-TA-002	Bellows Assembly	1
	TL-20R-TA-003	Check Valve Assembly	2
	TL-20R-TA-004	Fitting	2
	TL-20R-TA-005	Nut	2
	TL-20R-TA-006	¼ Inch PFA Fitting Nut	2
	TL-20R-EB-001	Motor	1
	TL-20R-MA-001	Ball Screw	1
	TL-20R-MA-002	Support Unit	1
	TL-20R-MA-003	Linear Bushing	2
	TL-20R-MA-004	Linear Shaft	2
	TL-20R-ET-001	Motor Pulley	1
	TL-20R-ET-002	Ball Screw Pulley	1
	TL-20R-ET-003	Timing Belt	1
	TL-20R-EB-002	Encoder	1
	TL-20R-EA-001	Photo Sensor	1
	TL-20R-CA-001	Air Speed Control	1

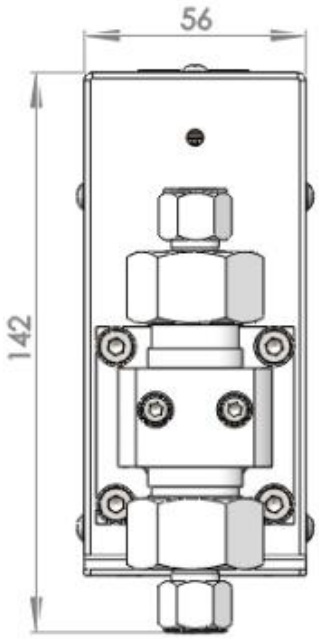
6-2 Pump Dimensions

6-2-1 Side View



[Side View]

6-2-2 Front / Rear View



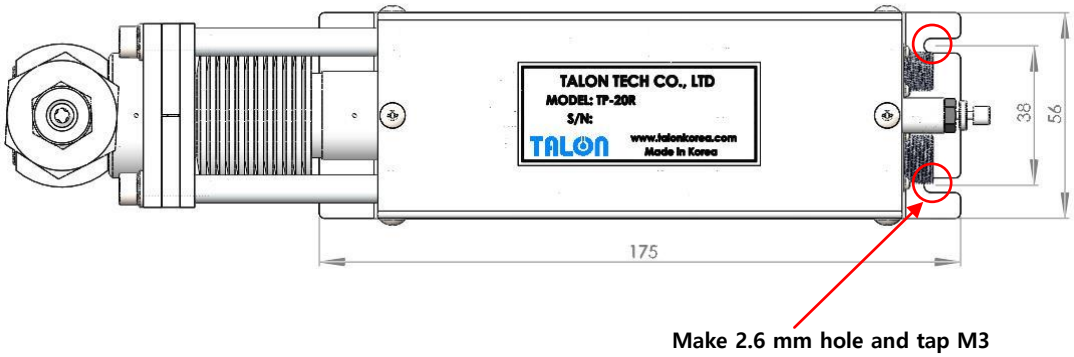
[Front View]

[Rear View]

6-3 Installation Method

6-3-1 Pump Installation Sequence

1. Prepare the space for the pump installation.
2. Tighten the panel base plate with 2 pieces of M3 screw.



6-3-2 Piping Method

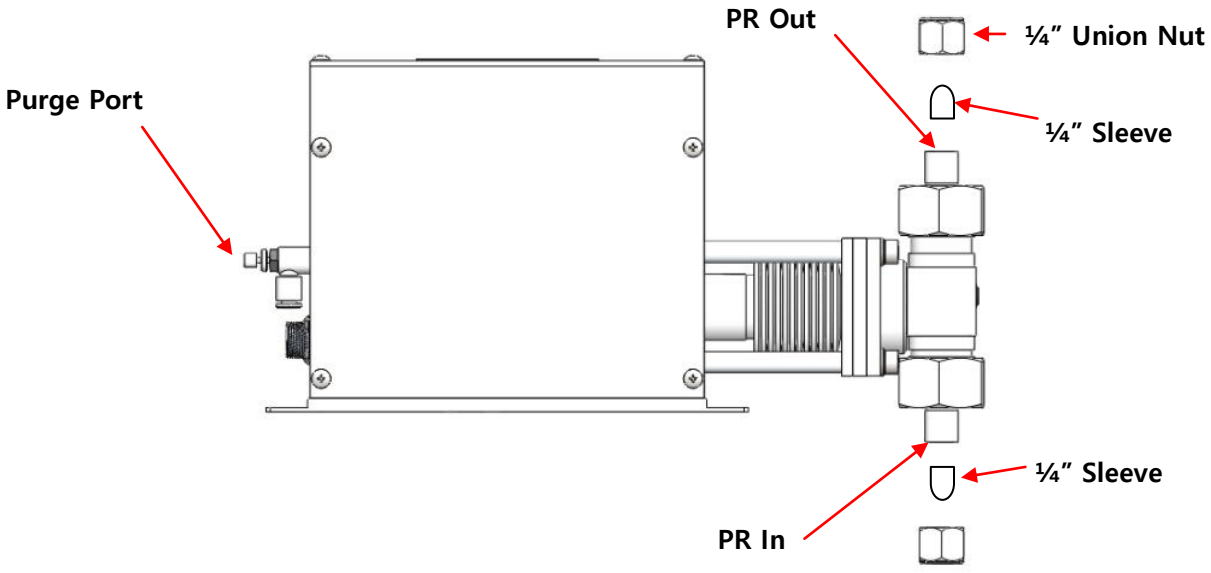
1. PR Tube Piping

1) Insert ¼" union nuts on tube at PR In/Out areas.

2) Insert ¼" sleeve into tube after enlarging tube with the tube expansion tool and then tighten nut.

2. Purge Line Piping

1) Connect 4Ø of air tube into the air speed control valve.



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