



innOBILE

Electric Water Pump

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1. Introduction

❖ Function

- **Electric Water Pump (EWP)** : Cooling Circulation Device for Automotive
 - 48V EWP
 - > Cooling for engine parts of internal combustion vehicles and 48V mild hybrid system
 - > Engine load reduced and structure around engine simplified
 - > Total fuel economy improved
 - 24V and 12V EWP
 - > Cooling for batteries, inverters and motors of hybrid and electric vehicles
 - : 24V EWP mainly applied for commercial vehicles (bus)
 - : 12V EWP mainly applied for passenger vehicles



❖ Features

- Advantage
 - High efficiency, low noise
 - Sensorless algorithm applied
 - Driving safety and EWP durability improved by enhanced automotive fail safety function algorithm (patent registered)
- Integrated module with a 3-Phase BLDC motor, a circulating pump and a controller
- Automotive ECU(Electronic Control Unit) development and design
- Customizing Interface : CAN, PWM and LIN

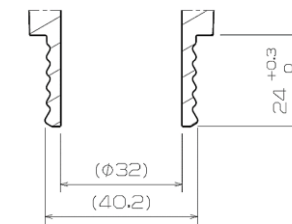
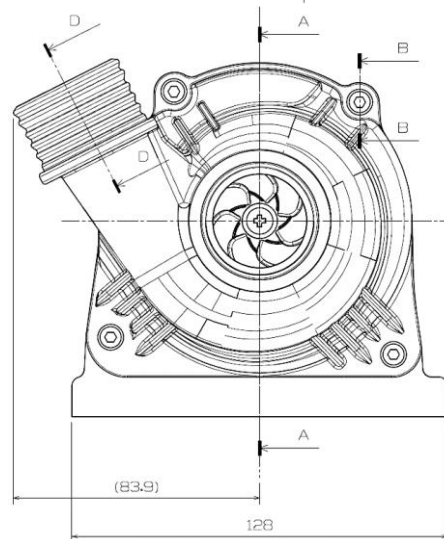
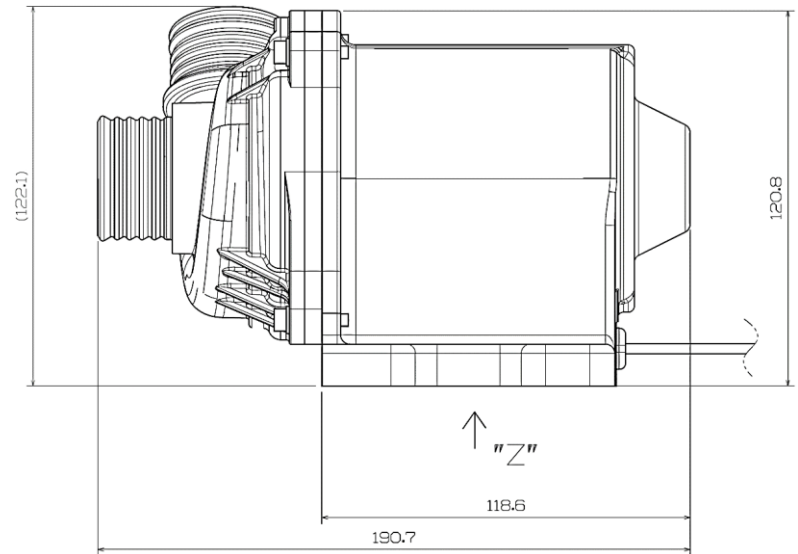
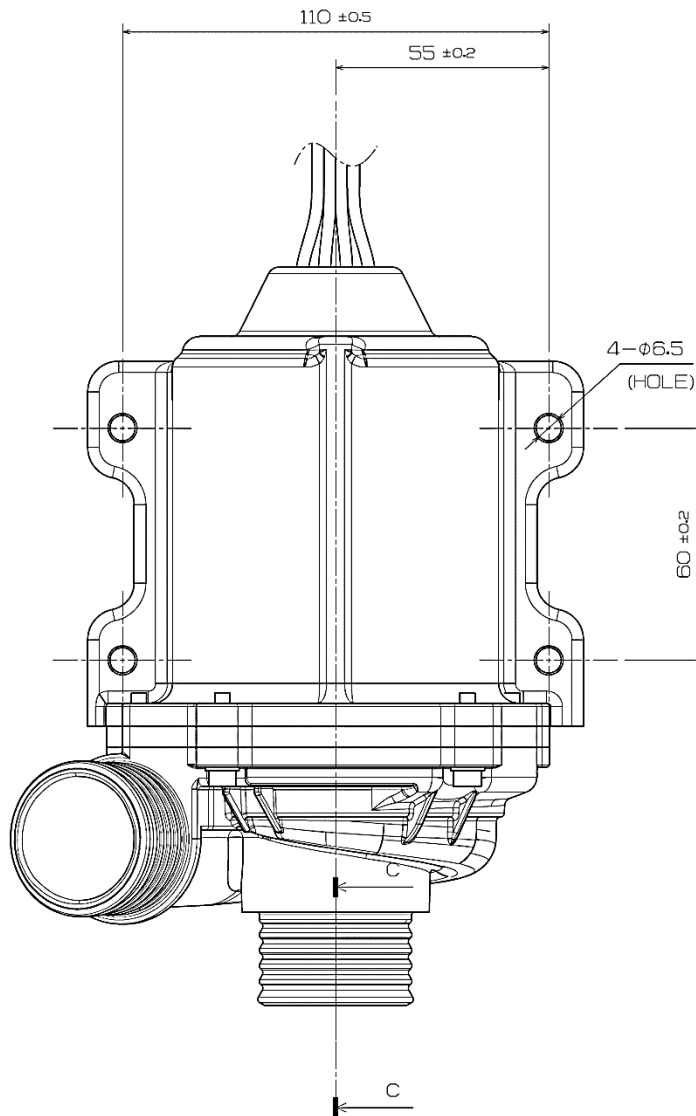
2. Specifications

❖ Technical data

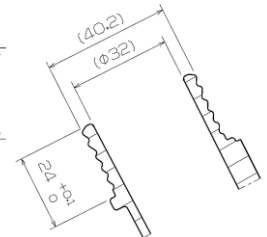
Item	Unit	12V	24V		48V
		60W	Medium Power	High Power	
Power Consumption	W	60	120	350	350
Input Voltage	V	12 (8~16)	24 (18~36)	24 (18~36)	48 (44 ~ 56)
Current	A	5.5	4	13	8.5
Pressure	Bar	0.65bar	0.4	0.8	1
Flow Rate	L/min	26.7 (@ 12V)	44 (@27V)	76.9 (@27V)	120 (@48V)
Module Efficiency (Motor + Pump)	%	36	-	45 ~ 50	45 ~ 50
Noise	db	< 40	-	67	65
Operating Temperature	℃	-40 ~ 125			
Protection Class	-	IP67			
Speed Instructions	-	PWM, CAN			
Motor	-	3-Phase BLDC Motor			
Main Protection Function	-	Overvoltage, overcurrent, overtemperature, dry-run protection, stall protection, short-circuit proof			
External diameter of inlet and outlet	mm	20	20	40.2	40.2
Module Dimensions	mm	118.0 x 88.0 x 106.0	118.0 x 88.0 x 106.0	190.7 x 147.9 x 122.1	190.7 x 147.9 x 122.1
Module Weight	g	580	700	2,440	2,440
Status	-	In development	In the approval test for electric bus in Korea	In the field test for electric bus in China	Internal test completed

3. Dimensions

❖ 48V and 24V High Power EWP Appearance Dimensions



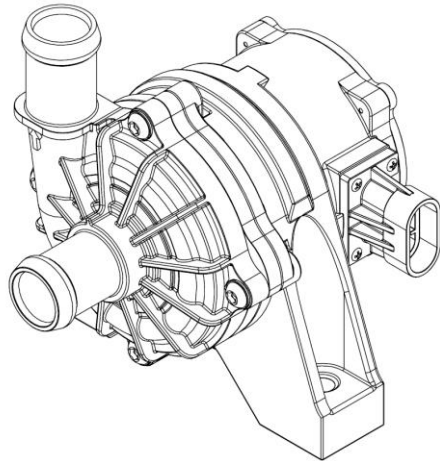
SECT. C-C
(INLET)



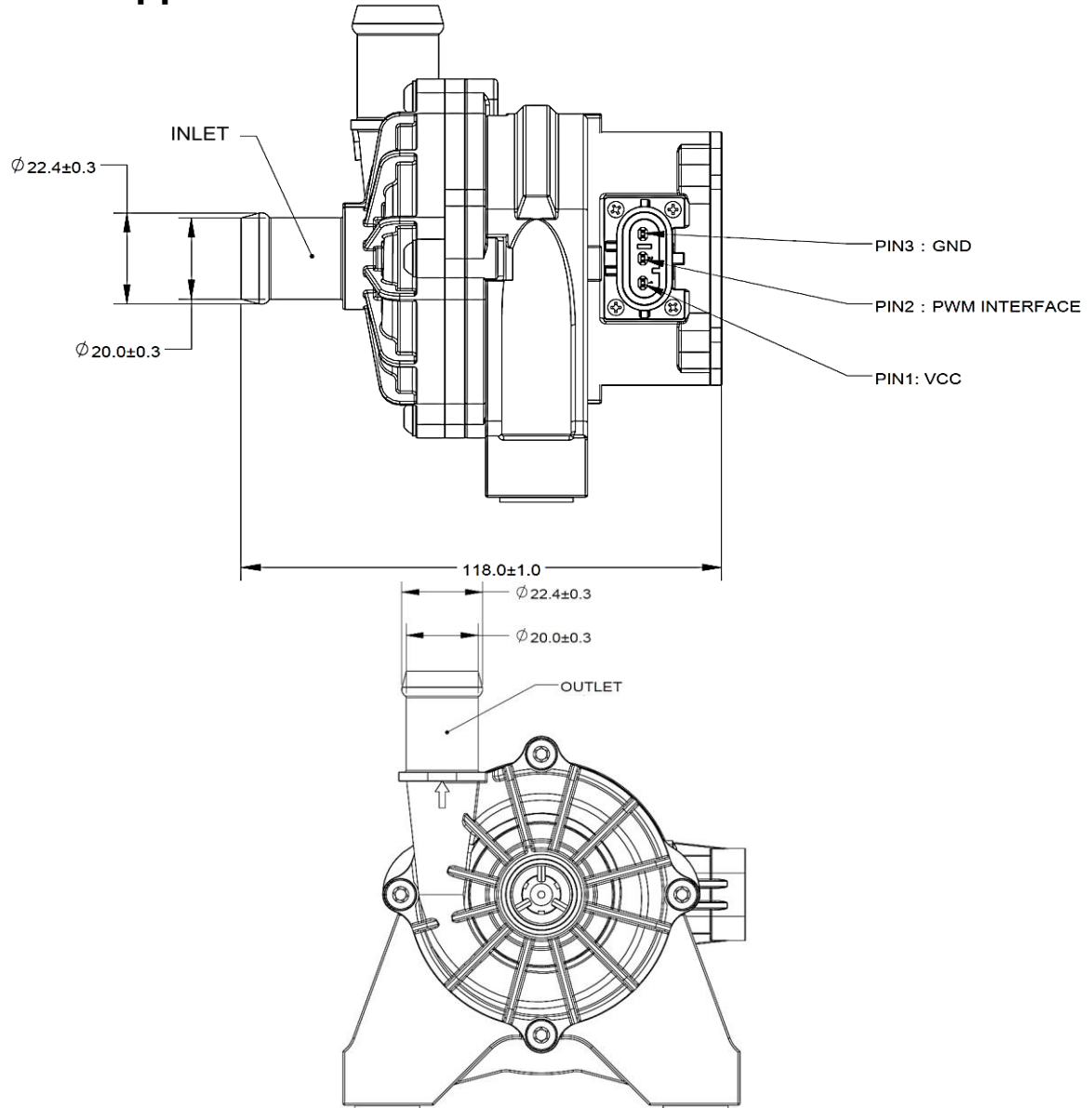
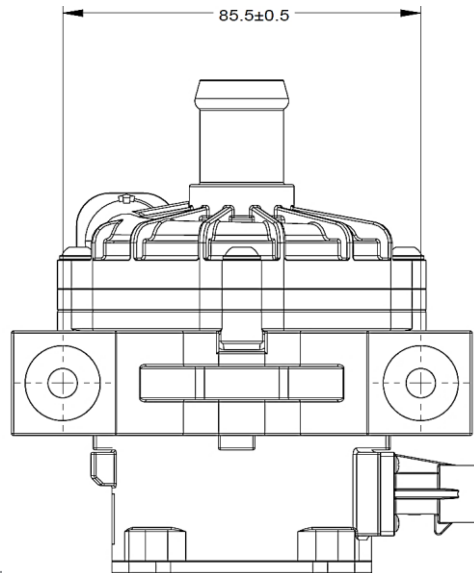
SECT. D-D
(OUTLET)

3. Dimensions

❖ 24V Medium Power and 12V EWP Appearance Dimensions



<Rubber Bracket
-> To be discussed separately>





THANK YOU