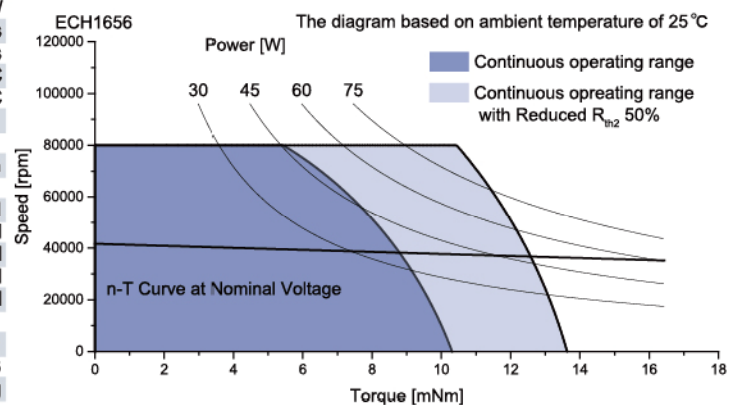


**M 1.5:1**

	Sensorless With hall sensor	ECH1656L-...	ECH1656S-...	2440	3040	3640				
<b>Motor data</b>										
<b>Values at nominal voltage</b>										
1	Nominal voltage	V		24	30	36				
2	No load speed	rpm		41670	40775	41311				
3	No load current	mA		103	89	79				
4	Nominal speed	rpm		39232	38438	38898				
5	Nominal torque	mNm		6	6	6				
6	Nominal current	A		1.2	0.95	0.8				
7	Stall torque	mNm		103	105	103				
8	Stall current	A		18.9	15.1	12.5				
9	Max. efficiency	%		85.8	85.2	84.7				
10	Terminal resistance	$\Omega$		1.27	1.99	2.88				
11	Terminal inductance	mH		0.09	0.14	0.2				
12	Torque constant	mNm/A		5.47	6.98	8.27				
13	Speed constant	rpm/V		1746	1367	1155				
14	Speed/torque gradient	rpm/mNm		406	390	402				
15	Mechanical time constant	ms		2.6	2.5	2.6				
16	Rotor inertia	gcm <sup>2</sup>		0.61	0.61	0.61				

17	Thermal resistance housing-ambient	16.2 K/W
18	Thermal resistance winding-housing	1.9 K/W
19	Thermal time constant winding	5 s
20	Thermal time constant motor	397 s
21	Ambient temperature	-40...+100°C
22	Max. permissible winding temperature	+150°C
23	Max. permissible speed	80000 rpm
24	Axial play at axial load <3 N	0 mm
	>3 N	max. 0.3 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	2.5 N
27	Max. force for press fits (static)	44 N
	(static, shaft supported)	1200 N
28	Max. radial loading, 5mm from flange	11 N
29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor	50 g

**Operating Range**



**Connection**

<b>Connection A (Sensor)</b>			PTFE
Pin 1	Vhall 3-18 VDC	AWG28	black
Pin 2	Hall sensor HA	AWG28	black
Pin 3	Hall sensor HB	AWG28	black
Pin 4	Hall sensor HC	AWG28	black
Pin 5	GND	AWG28	black
Pin 6	Motor winding MA	AWG28	black
Pin 7	Motor winding MB	AWG28	black
Pin 8	Motor winding MC	AWG28	black
Connector			JST PH2.0-8P
<b>Connection B (Sensorless)</b>			PTFE
Pin 1	Motor winding MA	AWG28	yellow
Pin 2	Motor winding MB	AWG28	green
Pin 3	Motor winding MC	AWG28	blue

**Configuration**

Performance: Customized within the continuous operating range  
 Ball bearing: Preload  
 Flange: Standard flange front&back/customize the flange  
 Shaft: Length/Diameter/Cut face/double shaft/hollow shaft  
 Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length  
 Connector: JST/MOLEX/TE