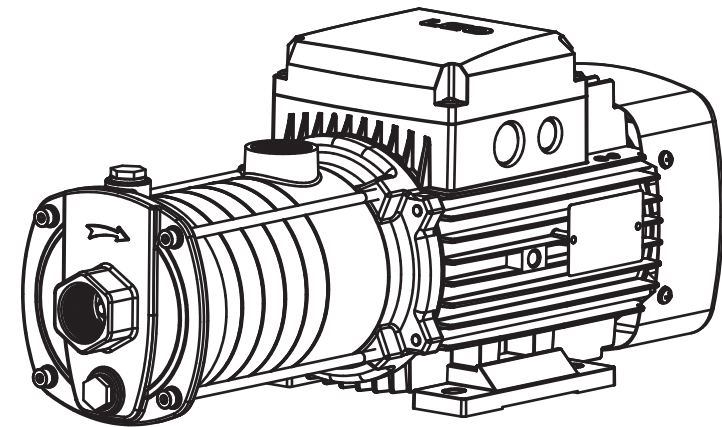




# Stainless Steel Horizontal Multistage Pump

## Instruction Manual



• ECH

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# CONTENTS

1. Application Environment .....	2
2. Expression of Pump Models .....	2
3. Performance Curves of Pump .....	3
4. Performance Parameters of Pump .....	4
5. Safety Precautions .....	5
6. Installation Drawing .....	7
7. Pipe Installation .....	8
8. Electrical Connection .....	10
9. Start-up and Maintenance .....	11
10. Common Faults and Processing Methods..	12

Problem	Possible cause	Remedy
The motor works brokenly or the stator winding is broken	The impeller is jammed or bears long-time overload operation	Remove the debris within the pump chamber, and let the pump work under rated flow as much as possible
	The pump is grounded incorrectly, the cable is damaged or the electric pump is struck by thunderbolt	Figure out the causes, or replace the winding coil
The mechanical seal suffers water leakage	The mechanical seal is worn by foreign matter	Clear up or replace the mechanical seal
Sound of the pump is abnormal	Bearing noise	Replace the bearing with a new one of the same model
	The impeller is jammed	Remove the debris
	The flow rate is too large	Adjust the flow rate to the range indicted on the nameplate

If you fail to solve a problem after following the tips in the above table, please call local distributor or call the customer service of our company: 400-711-3699.

## 10. Common Faults and Processing Methods



Disconnect power supply before service.

Problem	Possible cause	Remedy
The motor fails to start	Single-phase power supply (three-phase motor): a. poor contact of the power switch; b. burnout of the fuse protector; c. looseness of the power cord; d. open phase of the cable.	a. repair the switch contact or replace the switch; b. replace the fuse wire; c. check and tighten the power connector; d. repair or replace the cable
	The capacitance is burned out.	Replace the capacitance with a new one of the same model (or send it to the repair center for maintenance)
	The rotating shaft and bearing are deadlocked together	Replace the bearing (or send it to the repair center for maintenance)
	The impeller is jammed	Check the rotating shaft at the fan blade side with a screwdriver to make sure it rotates flexibly or disassemble the pump body to remove the debris
	The stator winding is broken	Replace the winding coil (or send it to the repair center for maintenance)
The motor operates without water yielding	Rotating direction of the pump is wrong	Transform the two-phase wirings of the motor (three-phase motor)
	The pump is not filled with water	Fill the pump body with water again
	The impeller is damaged	Replace the impeller (or send it to the repair center for maintenance)
	The suction pipe leaks air	Check the sealing condition of all the joints on the suction/inlet pipeline
	The water level is too low	Adjust the mounting height of the pump
	Accumulated water within the pipeline or pump Chamber is frozen	Start the motor after the ice melts off
The pressure is not enough	Model selection of the pump is not correct	Select a proper pump
	The inlet pipeline is too long, or corners are too many or the inlet pipe diameter is improper	Select an inlet pipe with specified diameter, and design the inlet pipeline to be much shorter
	The inlet pipeline, filter screen or pump chamber is blocked by foreign body	Purge the pipeline, bottom valve or pump chamber to remove debris

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

### Attention!

If the appliance or the supply cord is damaged, it must be repaired by manufacturer, its service agent or qualified person.



Meaning of crossed –out wheeled dustbin:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available.

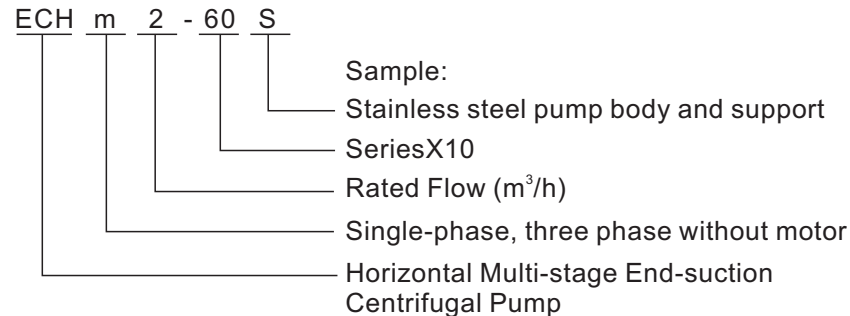


Before installation, you should carefully read this manual.

## 1. Application Environment

This product is used for domestic water supply, equipment supporting, pipeline booster, garden irrigation, vegetable greenhouse watering as well as water supply and drainage of livestock breeding, industrial and mining, enterprises and high-rise buildings, central air conditioning, central heating circulation system and other occasions. It is used for the delivery of water as well as other low-viscosity and non-eroding liquids. Flammable, explosive and readily gasified liquids and those including solid particles or fiber shall not be delivered, and PH values of the liquids to be delivered shall lie between 6.5 and 8.5.

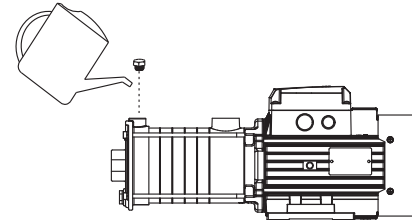
## 2. Expressions of Pump Models



## 9. Start-up and Maintenance



Don't start the pump until the pump chamber is filled with water. Unless the pump has been powered off at least for 5 minutes, otherwise, please don't touch the electric pump. Unless the water within the pump chamber is completely drained out, otherwise, please don't remove the pump body.



Turn round the fan blade first before start-up to check whether the pump rotates flexibly; and then unscrew the injection bolt and fill the pump chamber with water from the injection hole, and screw the bolt after the air within it is vented. Close the valve off upon start-up and shift it to the required flow after the pump operates smoothly with water discharge. (Flow rate and head range are displayed on the nameplate.)

### Notes:

- 1). In case of no draining for more than 5 minutes after start-up with water filling, then shut down the electric pump, and fill the chamber fully with water again or check whether there is any leakage in the inlet pipeline;
- 2). In case of any danger from frosting or freezing damage, please unscrew the drainage bolt to completely drain the water out from the pump chamber. However, when the pump is required to be started again, please unscrew the injection bolt before start-up to make the chamber filled with water and then screw the injection bolt;
- 3). If the pump is not to be used for a long time, accumulated water within it shall be completely drained out. The pump body, impeller and bracket shall be purged clean with antirust oil painted, and they shall be located at dry and ventilated places for standby;
- 4). In case of restart after a long-time shut down, please operate according to the drawing above;
- 5). Please pay attention to ventilation in case of summer or high-temperature environment. Dews on electric sections shall be prevented to avoid electric fault.
- 6). Please cut the power immediately if the motor is found burned or abnormal and check for faults according to the table below.

## 8. Electrical Connection

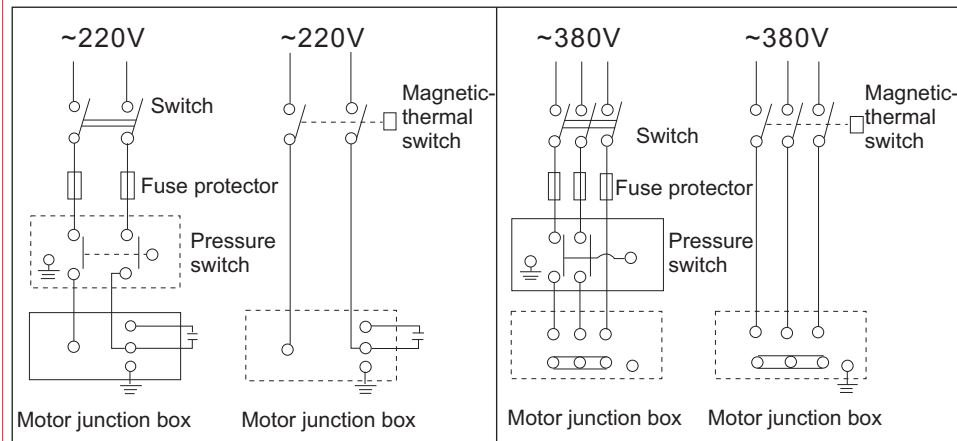


Unless the power is cut off, otherwise please do not implement any wiring operation on the junction box. The electric pump shall be reliably grounded to prevent electric leakage, and a leakage protection switch shall be equipped.

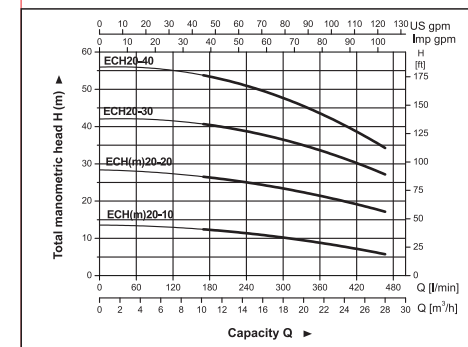
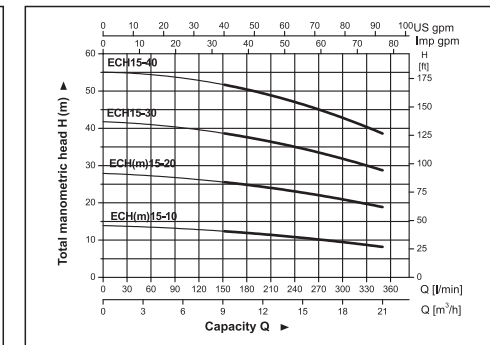
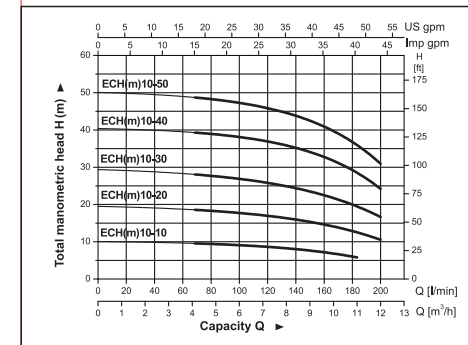
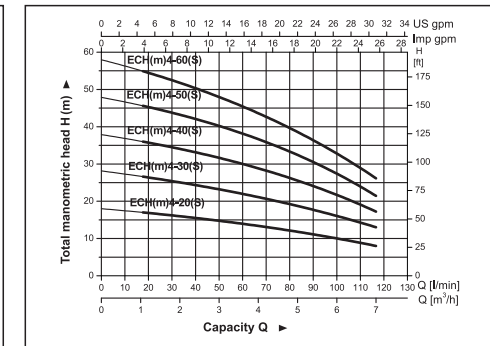
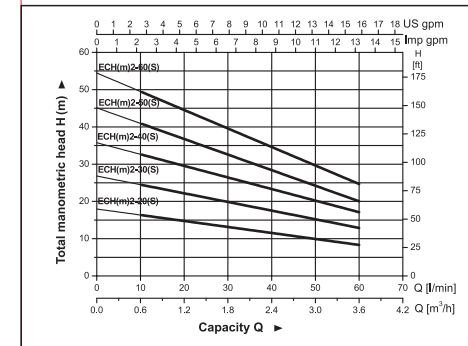
The electric connection and protection shall be implemented according to local regulations. Specifications on the working voltages are indicated on the nameplate, and a matching between the motor and power supply must be ensured. The power supply line shall be properly thickened if the workspace of the electric pump is relatively far from the power source, otherwise the normal operation of the electric pump will be affected due to a severe voltage drop. In case of outdoor use of the electric pump, rubber cables specialized for outdoor use must be adopted along the long line.

### Check the Rotation Direction of the Motor (Three-phase Motor)

Check whether the electric pump operates normally and the rotation direction is correct. Seen from the fan blade side, if it rotates counterclockwise, then the running direction is correct. In case of wrong rotation direction, cut off the power and exchange the two power lead wires.



## 3. Performance Curves of Pump



#### 4. Performance Parameters of Pump

ECH(m)2 Performance Table of Horizontal Multistage Pump Product

Model	Power (kW)	Q (m <sup>3</sup> /h)	0	0.6	1.2	1.8	2.4	3	3.6
ECH(m)2-20(S)	0.37	H (m)	18	16	15	13	12	10	8
ECH(m)2-30(S)	0.37		27	24	22	20	18	16	12
ECH(m)2-40(S)	0.55		35	33	30	26	24	21	16
ECH(m)2-50(S)	0.55		45	40	37	33	30	24	19
ECH(m)2-60(S)	0.75		53	50	45	40	36	30	23

ECH(m)4 Performance Table of Horizontal Multistage Pump Product

Model	Power (kW)	Q (m <sup>3</sup> /h)	0	1	2	3	4	5	6	7
ECH(m)4-20(S)	0.55	H (m)	18	17	16	15	13	12	10	8
ECH(m)4-30(S)	0.55		28	27	25	23	21	19	16	13
ECH(m)4-40(S)	0.75		38	36	34	32	28	26	22	17
ECH(m)4-50(S)	1.1		48	46	43	40	36	33	28	21
ECH(m)4-60(S)	1.1		58	55	52	48	43	39	33	26

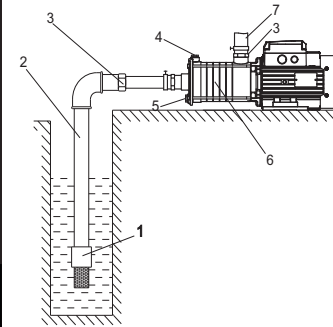
ECH(m)10 Performance Table of Horizontal Multistage Pump Product

Model	Power (kW)	Q (m <sup>3</sup> /h)	0	2	4	6	7	8	9	10	11	12
ECH(m)10-10	0.75	H (m)	10.1	9.8	9.6	9.1	8.7	8.2	7.7	6.8	5.8	
ECH(m)10-20	0.75		19.5	19	18.7	17.9	17.1	16.3	15.3	14.0	12.5	10.6
ECH(m)10-30	1.1		29.3	28.6	28.3	27.1	26.3	24.9	23.4	21.4	19.3	16.9
ECH(m)10-40	1.5		40	39.6	39.8	38.6	37.6	35.9	33.9	31.2	28.2	24.6
ECH(m)10-50	2.2		49.9	49.2	49.1	47.8	46.4	44.4	42.2	39.5	35.9	31.1

ECH(m)15 Performance Table of Horizontal Multistage Pump Product

Model	Power (kW)	Q (m <sup>3</sup> /h)	0	3	6	9	12	15	18	21
ECH(m)15-10	1.1	H (m)	13.9	13.5	13.1	12.4	11.6	10.6	9.4	8.2
ECH(m)15-20	2.2		27.8	27.5	26.7	25.6	24.1	22.7	21.1	18.8
ECH15-30	3		42.1	40.9	39.8	38.7	36.9	34.9	31.9	28.5
ECH15-40	4		55.5	54.3	52.8	51.8	49.7	46.8	42.9	38.3

Correct Installation Diagram A



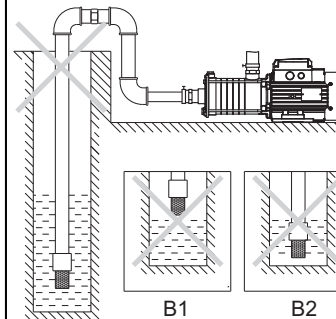
**A:**

1. Bottom Valve
2. Inlet Pipe
3. Flexible Joint
4. Injection Bolt
5. Drainage Bolt
6. Electric Pump
7. Valve

**B: Precautions for installation of inlet pipeline**

- 1). In case of installation of the electric pump, too soft rubber tube is forbidden for the inlet pipeline so as to avoid it is sucked flat.
- 2). The bottom valve shall be vertically installed 30cm above the water surface to avoid silt sucked (B2).
- 3). All the joints on the inlet pipeline must be sealed and elbows shall be reduced as much as possible, otherwise water can not be sucked up.
- 4). The inlet pipeline shall be at least of the same diameter as that of the water inlet to avoid too much hydraulic loss and influence on water delivery performance.
- 5). Pay attention to the decline state of water level during the use and the bottom valve shall not rise above the water surface (B1).
- 6). If length of the inlet pipeline is more than 10m or the lifting height of the inlet pipe is more than 4m, then the diameter of inlet pipe shall be larger than that of water inlet of the electric pump.
- 7). The electric pump shall be ensured not to suffer line pressure in case of installation of the pipeline.
- 8). In order to avoid solid particles entering into the electric pump, a filter shall be installed at the inlet pipeline.

Wrong Installation Diagram B



**C: Precautions for installation of outlet pipeline**

The outlet pipeline shall be at least of the same diameter as that of the water outlet to minimize its pressure fall, high flow rate and noise.

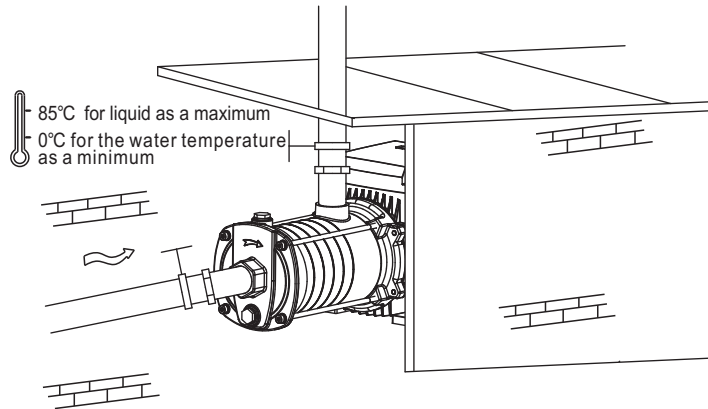
## 7. Pipe Installation



The product shall be installed and maintained by the personnel who have mastered this manual and own professional qualification.

The installation and operation must comply with local laws and regulations as well as accepted operational guidelines.

The pipeline shall be installed properly according to the manual requirements, and anti-freezing measures shall be simultaneously performed for the pipeline.

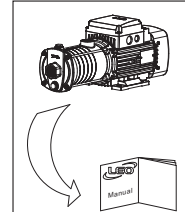


- 1). The inlet pipeline shall be made short as much as possible during the installation of the pump, and the number of corners shall be as few as possible. The pump shall be placed under a ventilated and dry environment. It can be mounted outdoor but a proper shelter must be provided to protect it against wind and rain.
- 2). When the pipelines are in use, valves shall be installed on both the inlet and outlet pipelines, and a non-return valve shall be provided for the inlet pipeline.

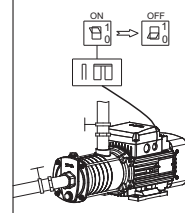
ECH(m)15 Performance Table of Horizontal Multistage Pump Product

Model	Power (kW)	Q (m <sup>3</sup> /h)	0	4	8	12	16	20	24	28
ECH(m)20-10	1.1	H (m)	13.6	13.3	12.8	12.1	10.8	9.5	7.8	5.7
ECH(m)20-20	2.2		28.5	27.8	27.0	26.1	24.4	22.4	19.8	17.2
ECH20-30	4		42.5	41.6	40.9	39.9	38.0	35.5	31.4	26.9
ECH20-40	4		56.6	55.2	54.2	52.7	50.1	45.9	40.3	34.0

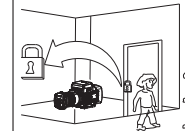
## 5 .Safety Instructions



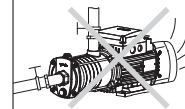
- 1). In order to ensure a normal and safe operation of the electric pump, please read this service manual carefully before use.



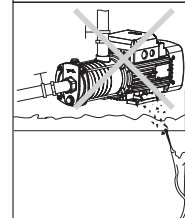
- 2). The electric pump shall be reliably grounded to avoid electric leakage. A leakage protection switch shall be equipped for safety. Be careful not to get the power plug wet, and the socket connection shall be located at places not to be affected by humidity.



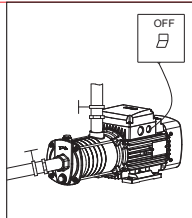
- 3). No touch during the operation of the electric pump. No washing, swimming and livestock entering the water near the working area. Beware of accidents!



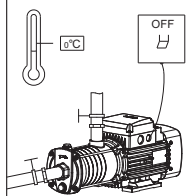
- 4). Keep the pump ventilated.



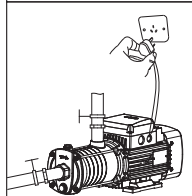
- 5). Stressed water shall be avoided to splash on the pump, and the electric pump shall be prevented to be immersed into water.



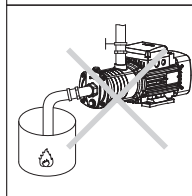
6). The liquid pumped maybe heated and it is under high pressure, so valves at both sides must be closed first and liquids within the pump and pipeline shall be completely drained out to prevent burns before the pump is moved or disassembled.



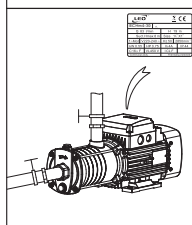
7). When the environment temperature is lower than 4°C or it is not to be used for a long time, liquids within the pipeline system shall be completely drained out to prevent freezing and frost cracking of the pump chamber. The pump shall not operate for a long time without water.



8).The pump shall be ensured not to be switched on unexpectedly during the installation and maintenance. If it is not to be used for a long time, the power shall be cut off first and then pipe valves at both the inlet and outlet sides shall be closed.

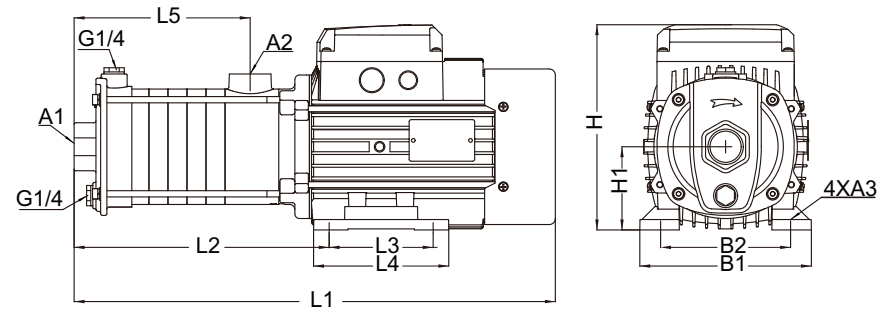


9).Any flammable, readily gasified and explosive liquids beyond the regulation shall not be delivered by the pump.



9).Power supply shall be implemented according to the voltage indicated on the nameplate. If the pump is not to be used for a long time, it shall be kept under a dry, ventilated and shady place at room temperature.

## 6. Installation Drawing



Model	L1	L2	L3	L4	L5	B1	B2	H	H1	A1	A2	A3
ECH(m)2-20	344.5	165.5	90	110	98.5	137	109	176.5	71	G1	G1	Ø7
ECH(m)2-30	362.5	183.5	90	110	116.5	137	109	176.5	71	G1	G1	Ø7
ECH(m)2-40	380.5	201.5	90	110	134.5	137	109	176.5	71	G1	G1	Ø7
ECH(m)2-50	399.5	220.5	90	110	153.5	137	109	176.5	71	G1	G1	Ø7
ECH(m)2-60	417.5	238.5	90	110	171.5	137	109	176.5	71	G1	G1	Ø7
ECH(m)4-20	354	175.5	90	110	108.5	137	109	176.5	71	G1 1/4	G1	Ø7
ECH(m)4-30	381.5	203	90	110	136	137	109	176.5	71	G1 1/4	G1	Ø7
ECH(m)4-40	408.5	230	90	110	163	137	109	176.5	71	G1 1/4	G1	Ø7
ECH(m)4-50	484	266	100	130	190	165	125	204.5	80	G1 1/4	G1	Ø10
ECH(m)4-60	511.5	293.5	100	130	217.5	165	125	204.5	80	G1 1/4	G1	Ø10
ECH(m)10-10	430	212	100	130	121	165	125	204.5	80	G1 1/2	G1 1/4	Ø10
ECH(m)10-20	430	212	100	130	121	165	125	204.5	80	G1 1/2	G1 1/4	Ø10
ECH(m)10-30	460.5	242.5	100	130	151.5	165	125	204.5	80	G1 1/2	G1 1/4	Ø10
ECH(m)10-40	549.5	261.5	125	150	182	180	140	217.5	90	G1 1/2	G1 1/4	Ø10
ECH(m)10-50	579.5	291.5	125	150	212	180	140	217.5	90	G1 1/2	G1 1/4	Ø10
ECH(m)15-10	451	233.5	100	130	139.5	165	125	204.5	80	G2	G2	Ø10
ECH(m)15-20	510	222	125	150	139.5	180	140	217.5	90	G2	G2	Ø10
ECH15-30	560	272	125	150	189.5	180	140	217.5	90	G2	G2	Ø10
ECH15-40	616	336.5	140	180	230	205	160	224.5	100	G2	G2	Ø12
ECH(m)20-10	451	233.5	100	130	139.5	165	125	204.5	80	G2	G2	Ø10
ECH(m)20-20	510	222	125	150	139.5	180	140	217.5	90	G2	G2	Ø10
ECH20-30	570.5	291	140	180	184.5	205	160	224.5	100	G2	G2	Ø12
ECH20-40	616	336.5	140	180	230	205	160	224.5	100	G2	G2	Ø12