

## **EHPS – Electro Hydraulic Power Steering Solution**

EHPS, Electro Hydraulic Power Steering (EHPS), is a “flow on demand” technology, where the steering is controlled by varying the pump speed using an electric AC motor, instead of a belt-driven solution.

In this way, the steering effort can be easily controlled by varying the pump speed, therefore the flow can be better matched to actual requirements, avoiding oil flow through a relief valve and consequently the efficiency of the system is improved.

EHPS can be installed on Fully Electric, Hybrid and Trolley Buses. It is made up of:

- Gear Pump (*shhark*® product range)
- Asynchronous Electric Motor
- Inverter for switching DC in AC

Steering Systems are usually located under the bus driver seat. So, the System must respect severe parameters in terms of noise.

Turola *shhark*® product range perfectly matches that requirement of absence of noise for preserving the driver comfort and respecting current legislations about noise.

## **Features & Benefits**

**EHPS high-performance hydraulic steering system can offer several benefits:**

### **❑ QUIET TECHNOLOGY**

Close to zero noise emissions and vibration.

### **❑ SYSTEM DOWN SIZING.**

The correct flow is guaranteed by the minimum displacement of the gear unit.

### **❑ HIGH EFFICIENCY WITH POWER ON DEMAND & ENERGY SAVINGS.**

The pressure is generated based on the demand from the steering wheel (up to 50% energy saving comparing the standard solution).

### **❑ LOWER COST INSTALLATION & MODULAR SOLUTION.**

EHPS modular solution leaves pipe connections to almost nothing, with 24V power supplied by the onboard battery.

### **❑ COMFORT & SIMPLE INTERFACE.**

EHPS offers comfort and a simple interface: front or rear axle load-independent and environmentally-friendly.

### **❑ SPECIFIC CUSTOMIZED CONTROL FUNCTIONS**

With the combined powers of PLUS+1® technology, PLUS+1® GUIDE software platform and a growing portfolio of PLUS+1® Compliant products, customers are able to quickly develop a customized electronic machine control.

### **❑ SERVICE TOOL**

The PLUS+1® PC SERVICE TOOL is fully customizable with own logo permits multiple access protection levels and customizable service screens. It's available free of charge and downloadable from our web site.



Parameters	Unit	04	06	08	11	14
Power	kW	2 – 5,5				
Voltage	V	24				
IP class		54 – 66 – 6K9K				
Displacement	<i>cm<sup>3</sup>/rev</i>	3,9	6,0	8,4	10,8	14,4
	<i>in<sup>3</sup>/rev</i>	0,24	0,37	0,51	0,66	0,88
Rated Pressure	<i>bar</i>	280	280	280	280	280
	<i>psi</i>	4060	4060	4060	4060	4060
Peak Pressure	<i>bar</i>	250	250	250	250	250
	<i>psi</i>	3625	3625	3625	3625	3625
Minimum Speed	<i>rpm</i>	600	600	600	500	500
Maximum Speed	<i>rpm</i>	4000	4000	4000	4000	3500