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# IronBird | PowerBox

## Stand-alone power supply fuelled by hydrogen from six H2Tank2Go®

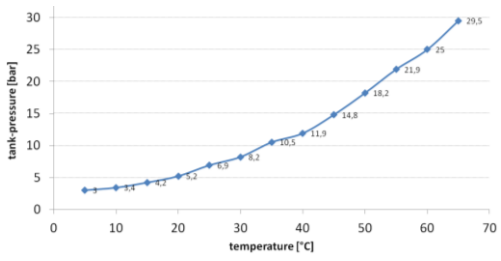
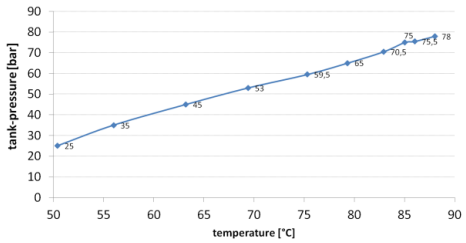
e. g. converts any ZEV (battery) into a hydrogen driven vehicle (interurban)

## Refuelling at home or replacing at any home-depot / tank vending machine

Nanostructures for Zero Emission Future Transportation & Energy

| IronBird \| PowerBox | at a glance |
|---|---|
|  | • stand-alone fuel cell system (PEMFC) powered by solid-state absorber tanks H2Tank2Go®<br>• 2un PEM FuelCells (back-up IronBird)<br>• provides energy to an external battery<br>• replacing tanks in seconds by "click'n'go system"<br>• refuelling within seconds by replacing tanks<br>• for the trunk of ZEV, glider, boat, camping, APU<br>• utilizing renewable power - P2G2F®<br>• virtually pressure-less, safe, clean, long lifetime<br>• flexible multi-tank-operation, brilliantly simple |

| technical data | | handling & application |
|---|---|---|
| $H_2$-capacity (6 tanks)<br>(**30**0 g guaranteed; future **target 6**00 g) | 300 g, 3.336 NL,<br>10,02 kWh |  |
| max. power output (2un. PEMFC) | ~ 2 kW | |
| operating temperature | 0 - 80°C | |
| REC tank charging \| max. pressure | 15 bar \| 30 bar | |
| operating pressure | < 10 bar | |
| dimensions | 500 x 400 x 150 mm | |
| total weight | 45 kg | |
| $O_2$- supply and cooling | ambient air | H2Tank2Go® at a tank vending machine, six on the IronBird\|PowerBox |
| burst pressure tolerance | 84 - 96 bar (at 20°C)<br>78 - 90 bar (at 85°C) |  |
| material tank valves | brass | |
| material casing & tank vessels | stainless steel | |
| metal hydride material | Hydrolium® | |
| storage capacity (Hydrolium®) | ca. 1,8 wt% | |
| REC $H_2$ quality for charging | 3.0 (or better) | |
| lifetime (proper handling assumed) | > 7 years | in the trunk of a ZEV or on board of small aircraft; click'n'go system |

| pressure curve without "on-top pressure" | pressure curve with "on-top pressure" of 15 bar |
|---|---|
|  |  |

| charging with hydrogen, heat-removal, on-top pressure release |
|---|
| Charging is recommended at 15 bar hydrogen pressure. For heat removal during the same, keeping the H2Tank2Go® in a water bath is sufficient. It is advised to remove the 15 bar "on-top-pressure" right after charging in order to guarantee better handling of the quick connector (click'n'go). The waste heat of the fuel cell is used to keep H2-desorption constant (tank shell temp. > 50°C). |