

# NORMACONNECT® VPP ALUMINIUM



# Lightweight Aluminum VPP Clamps for FCEV e-compressors

Fuel Cell Electric Vehicles (FCEVs) represent a promising step towards sustainable transportation by offering zero-emission mobility. Traditionally, e-compressor applications in FCEVs have used aluminum flanges due to the critical need for lightweight components. Our lightweight aluminum VPP clamp is specifically designed for sealing these aluminum flanges, minimizing the risk of mixed metal corrosion.

This innovative clamp is also perfectly suited for fastening aluminum connections and various low-temperature V flange applications.



## This is what you will love!

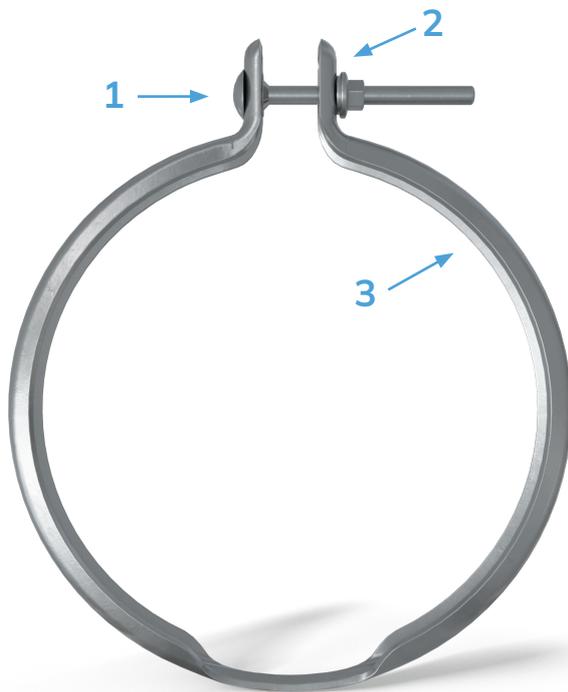
- ✓ **Light-weight:** 55 % lighter compared to 1.5 mm thick stainless steel.
- ✓ **Cost-efficient:** 30 % cheaper than equivalent stainless-steel products.
- ✓ **Safe:** its robust design ensures a secure and leak-free connection.
- ✓ **Versatile:** suitable for both aluminum and plastic flanges.
- ✓ **Varied:** available in multiple sizes, from  $\varnothing$  79 mm to  $\varnothing$  150 mm.
- ✓ **Multifunctional:** optimized for use at any low temperature (max. 175 °C) and low pressure (Axial load 4~5.5 kN) application.

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## Where you can use it:

- ✓ Fuel Cell Electric Air Compressors (connecting impeller housing to propeller housing).
- ✓ Low temperature and low-pressure applications in Fuel Cell Electric Vehicles (FCEVs).

## How it looks:



- 1 Bolt M5, Grade 12.9 & Captive Washer M5
- 2 Washer M5, Grade 4.6 & Hexagon Nut, Grade 8.8, zinc plated
- 3 V Profile 5083 H111

## Technical features at a glance:

Diameter range:	Ø 79 to Ø 150 mm
Maximum temperature:	+175 °C
Tightening torque:	Max. 2 Nm
Axial load:	4 to 5.5 kN
Leakage rate:	Less than 0.15 ml / min @ 1 bar (with one axially compressed ring)
Recommended material:	Aluminum 5083 H111

You might also be interested in these products:

### NORMACONNECT® V-QRC



- Quick Release Closure (QRC) for rapid, single-handed clamp
- Adaptable to flanges with wider tolerances compared to VPP Clamps
- Available up to diameter 300 mm

### NORMACONNECT® VPP Bridge



- Standard version of high-performance profile clamp
- Quick and easy installation due to spring bridge

### Why V-Clamps from NORMA Group?

In contrast to bolted flange connections, our V-Clamps can be installed and removed quickly. Only one screw needs to be tightened for a secure flange connection, saving time and money with every installation. In addition to this, every NORMA stainless steel profile clamp is resistant to corrosion and extreme temperatures. All NORMA connections are perfectly adapted to the flange and tested against OEM specifications for tightness and durability.



Do you have questions or require a personal consultation?

Feel free to contact us: [info@normagroup.com](mailto:info@normagroup.com)

Or visit our website for more information about our solutions: [www.normagroup.com](http://www.normagroup.com)

