

# Progress® EMC powerCONNECT

Direct connection technology for high leakage currents and the best possible shield connection in the smallest space.

Your EMC solution for shielded cable entries in **electromobility** applications



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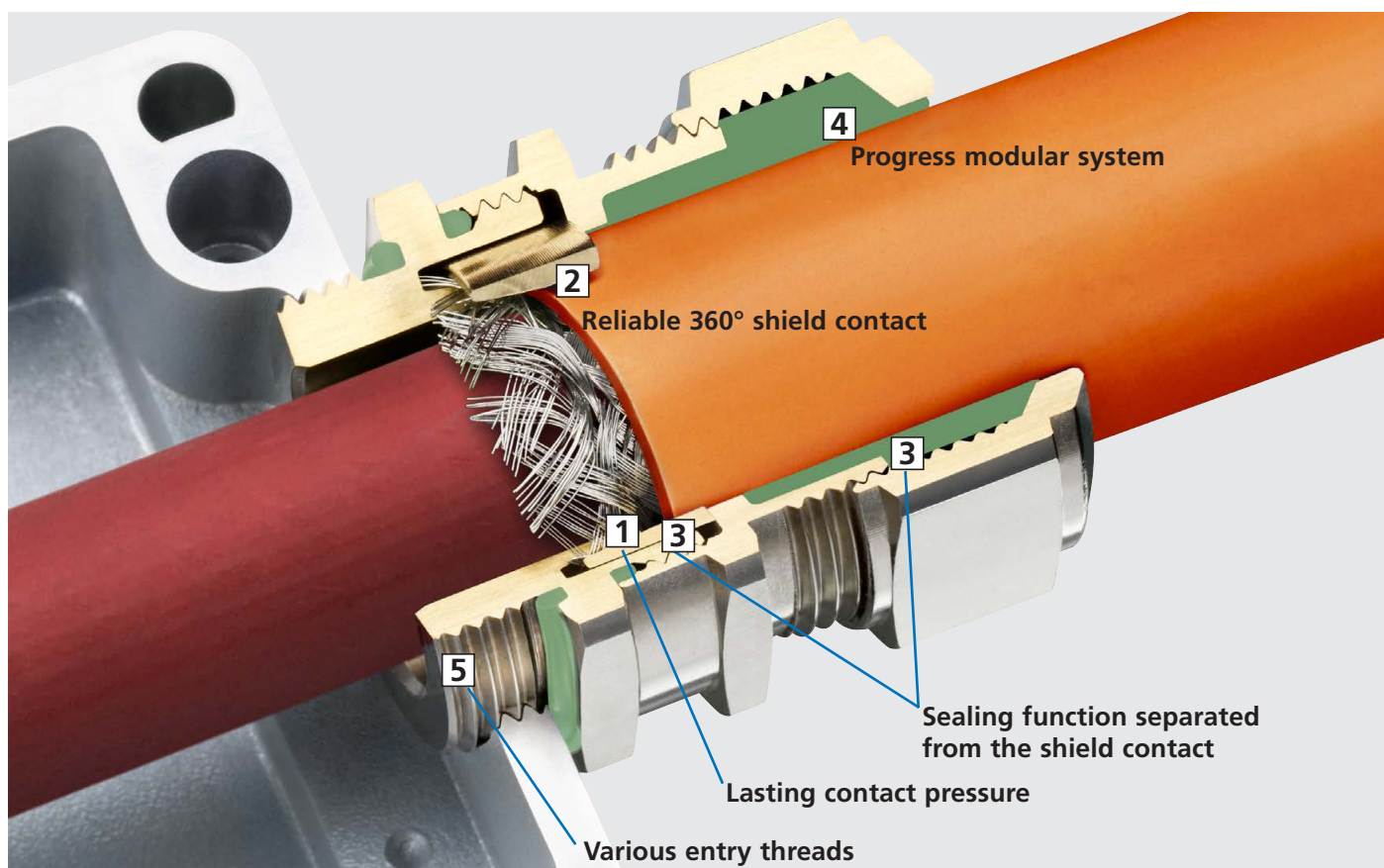
## Electromobility / Decarbonisation of traffic

### New challenges and solutions

**Battery-electric commercial vehicles** present numerous companies in the industry with new challenges. High vehicle electrical system voltages of 300V up to 1000V or more can result, not infrequently, in previously unknown EMC problems in connection with shielded high-voltage cables, converters and DC/DC transformers. The power semiconductors, with their cyclic behaviour, cause large changes in current and voltage in the high-voltage lines, which distribute electromagnetic interference on the vehicle and can thus affect other vehicle components. Additional transient processes during load and speed changes exacerbate the EMC problem, as do the miniaturisation of the components and the additional increase in the power densities of the individual components. We recommend the **Progress® EMC powerCONNECT** for these demanding requirements of electromobility.

The special compression sleeve ensures a **reliable 360° shield contact** without creating pressure on the inner protective sheathing, thereby ensuring a low-resistance connection to the housing. Thanks to the excellent shield contact, **large interference currents can be reliably diverted**, even at high frequencies.

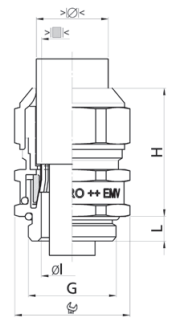
The outstanding properties of Progress® EMC powerCONNECT have been confirmed using the coaxial measurement method according to IEC 62153-4-10 (see graphic on page 3).



### Technical specifications:

- Shielding attenuation: graphic on page 3
- Derating: graphic on page 4
- Contact with the shield: 360° (shielding without caps)
- Protection class: IP 68 + IP 69 (according EN 60529)
- Temperature range: -40°C bis +200°C
- Properties: good chemical resistance

Material: Messing vernickelt  
 Dichtung: FPM  
 O-Ring: FPM  
 Zugentlastung: Ausführung A nach EN 62444  
 Einsatztemperatur: -40°C / +200°C  
 Schutzart: IP 68 (bis 10 bar)  
 Weitere Schutzart: IP 69  
 Eigenschaften: Für hohe Ableitströme, konzentrische Schirmkontaktierung 360° mit tiefstem Übergangswiderstand und Transferimpedanz. Sehr geringe Bauhöhe.



Zweiteiliger Dichteinsatz  
 nicht durchgehend isolierend

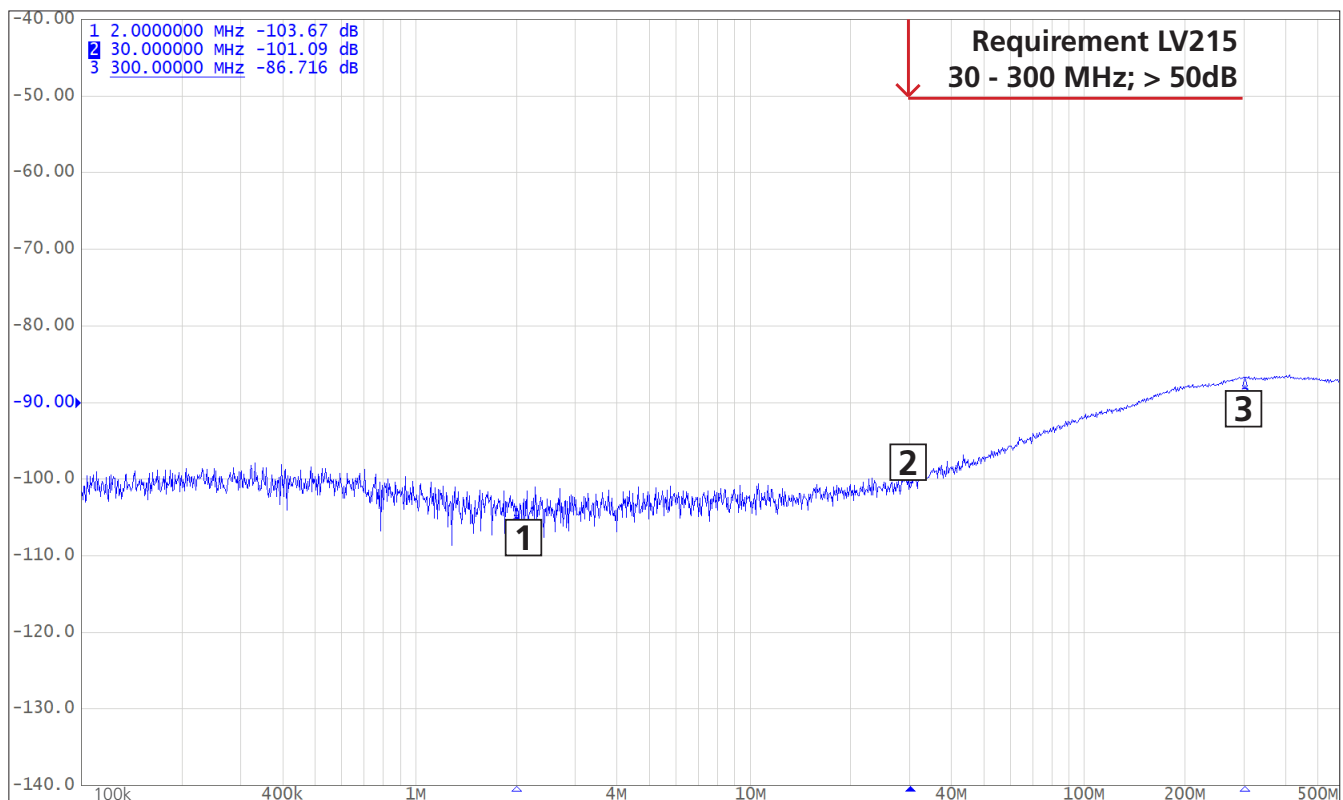
| G       | >Ø<<br>min mm | >Ø<<br>max mm | >Ø<<br>min mm | >Ø<<br>max mm | > <<br>max mm | Øl<br>max mm | H<br>mm | L<br>mm | i<br>info | Art.-No. |            |    |
|---------|---------------|---------------|---------------|---------------|---------------|--------------|---------|---------|-----------|----------|------------|----|
| M16x1.5 | 6.0           | 8.0           | 8.0           | 10.5          | 9.3           | 8.2          | 18      | 28      | 5         | 2        | 1084.17.92 | 25 |
| M20x1.5 | 8.0           | 11.0          | 11.0          | 15.0          | 13.4          | 11.9         | 24      | 32      | 6         | 2        | 1084.20.92 | 25 |
| M25x1.5 | 12.5          | 16.0          | 16.0          | 20.5          | 18.7          | 17.6         | 30      | 36.5    | 7         | 2        | 1084.25.92 | 25 |
| M32x1.5 | 17.0          | 21.0          | 21.0          | 25.5          | 23.8          | 22.1         | 36      | 38.5    | 8         | 2        | 1084.32.92 | 25 |

2 = Zulassungen in Vorbereitung

Auf Anfrage lieferbar:  
 Rostfreier Stahl A2 oder A4  
 Anschlussgewinde Pg und NPT



## Shielding attenuation of Progress® EMC powerCONNECT M25 (Article 1084.25.92) with cable 70mm<sup>2</sup> (H+S 84100298)

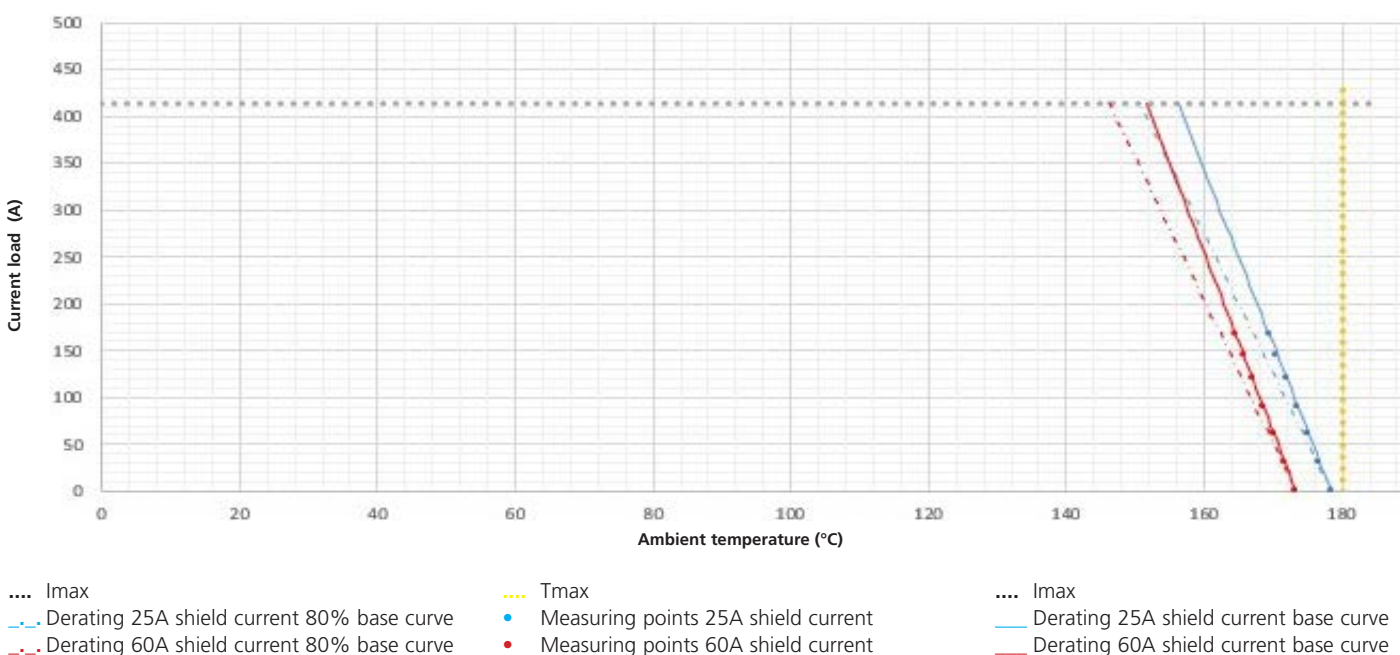


# Induced loads in cable shield heat EMC components

High current loads and high frequencies in the conductors induce an equally significant load in the cable shields. These „shield current load“, which can sometimes exceed 25A, often place higher thermal demands on the EMC components than expected. If the shield contact elements do not have sufficient material thickness, if the crimping or clamping technology is inadequate, or if the shielding does not transmit directly and seamlessly to the equipment unit, the temperature can rise sharply due to contact resistance. The consequences can be devastating. The powerCONNECT cable gland offers exceptional protection against this, as even shield currents of over 100A can be transmitted easily and safely to the housing. In-house testing under laboratory conditions confirm the excellent performance. As a result, safety and reliability are considerably improved.

## Derating Progress® EMC powerCONNECT M25 according LV215 with 70mm<sup>2</sup> LV216-2 cable (KROSCHU 64997451)

Derating 1084.25.92 (FPM sealing insert)



The **derating** diagram shows the permissible DC conductor load of a specific conductor depending on the ambient temperature for the defined DC shield currents. The conductor and shield load must be adjusted depending on the ambient temperature in order to avoid excessive temperature increases.

## Optimal shield connection – a significant contribution to interference resistance

The causes of EMC interference in electric vehicles can often be traced back to inadequate EMC connection of the cable shields. The entire design of a shield connection inside a cable gland, a high-voltage plug or a cable entry is of great importance. It must be ensured that all components used are immune to interference. Insufficient dimensioning of shield contact parts or imperfect shield connection can weaken the entire system. This reduces the EMC immunity, making EMC testing more challenging. Not least interference can also occur in the vehicle's drive and control system. Therefore, powerCONNECT has a specially designed shield connection that enables 360° shield contact to be achieved separately, regardless of the sealing insert. This exceptional design ensures seamless, direct shield contact to the connected unit, resulting in high immunity to interference.