

VERIFICATION STATEMENT

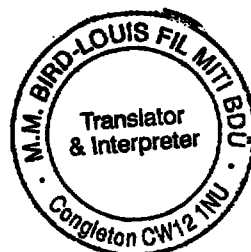
I, Ms M.M. Bird-Louis of 24-26 Surrey Drive, Lower Heath, Congleton, Cheshire CW12 1NU, England (UK), hereby refer to my statement dated March 25, 1996 and certify that the translation referred to therein is a true, accurate and complete translation of the German original of PCT International Application No. PCT/EP 95/01409 as originally filed.

M.M. Bird-Louis

Signature

March 31, 1998

Date/Seal



SG 96 11814-6

PCT APPLICATION + TRANS

M. M. BIRD-LOUIS
Interpreter FIL MITI BDÜ

SG2
= SG1 + Summary
(PCT/EP85/01.403)

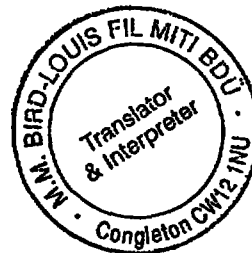
CERTIFICATE OF ACCURATE TRANSLATION

I, the undersigned Ms. M. M. Bird-Louis of 24-26 Surrey Drive, Lower Heath, Congleton, Cheshire, CW12 1NU certify that the translation attached is a true, accurate and complete translation of the German original.

Signature

March 25, 1996,

M. M. Bird-Louis



Ms. M. M. Bird-Louis

Fellow of the Institute of Linguists
Member of the Institute of Translation and Interpreting
Member of Bundesverband der Dolmetscher und Übersetzer
e. V.

24-26 Surrey Drive, Congleton, Cheshire CW12 1NU, England
Tel.: 01260 270041 Fax: 01260 278860
VAT No. GB 388 1494 10

M. M. BIRD-LOUIS
Interpreter FIL MITI BDÜ

SG₂
= SG₁ + summary
(=PCT/EP 85/01.409)

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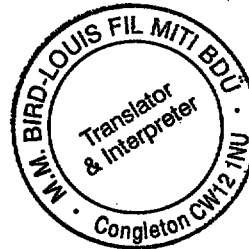
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*Transl. of
what doc.?
SG 9611814-6*

24-26 Surrey Drive, Congleton, Cheshire CW12 1NU, England
Tel.: 01260 270041 Fax: 01260 278860
VAT No. GB 388 1494 10

J A C O B

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09 April 1994/K

Reg. No. 200 678

J A C O B GmbH Elektrotechnische Fabrik
of Kernen-Rommelshausen/Württ., Germany

Angular Cable Gland

Angular Cable Gland

Specification

The invention relates to an angular cable gland with and without strain release, for electronic equipment, i.e. a so-called an angular cable gland according to the generic term of Claims 1 or 5 (water-tight design).

The state of technology is based on 90° cable glands only consisting of two enclosure sections, either connected rigidly or articulated with each other. In the latter so-called hinged angles, an outwardly square-shaped enclosure is diagonally divided into the two externally triangular sections forming a hinge at the external corner of the enclosure, allowing the enclosure to be opened by 90°, with the two bores of the two sections therefore being aligned to form a straight cable gland. This is followed by the enclosure being folded for shutting, with the cable bent in a right angle as in rigid 90° cable glands. A **disadvantage** of these two cable glands is the rigid bending stress on the cable in the gland and its tedious pulling over an angle of 90° and/or the expensive manufacture of the hinge mechanism.

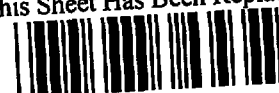
It is the **Aim** of the invention to reduce the stress on the cable and to facilitate pulling the cable through based on a medium manufacturing costs level.

The **solution** of this task is an angular cable gland according to Claims 1 and/or 2.

The **advantage** of this solution is the reduced curvature radius of the extended quarter circle-shaped cable curvature and easy separation of the two halves of the enclosure to which the cable is passed in two individual steps, with both sections being reunited, in a cable deflection of 90° affected by at least one intermediate section, preferably one centre section of the enclosure.

In a number of preferred embodiments of the angular cable gland according to the invention, the device has been designed according to Claim 3 in such a way as to allow the other half after to be fastened to the cable attaching its one section to the enclosure of the device and pulling the cables through both sections and connecting them with each other to be rotated in the direction from which the cable at the equipment enclosure originated.

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Other useful embodiments of the angular cable gland according to the invention, in particular by an engaging direction at the rotary connection of the two enclosure sections and/or by a quick-release connection of the same, result from Claims 4 to 10.

The following is a detailed description of the invention based on several embodiments presented as examples in the drawings based on several examples of embodiments presented in the drawing of the angular cable gland according to the invention. Where:

Fig 1a to c each are a centre longitudinal section and/or a view of a variation of the first embodiment

Fig. 2 is an alternative to the first embodiment in the same presentation

Fig. 3 is a second embodiment in the same presentation.

Where the shown angular cable glands agree, the same reference for this were used for identical or corresponding parts.

The embodiments more or less copied from the utility model 92 04 256 (Jacob) in the left-hand or top half include one enclosure each having left end and a single central intermediate and one bottom end section 10, 12 and/or 14 including straight bores, the axes of which are intersecting each other in pairs in a obtuse angle of less than 120° , resulting overall in a rectangular, slightly curved deflection of the cable which is not shown.

The central intermediate section 12 consists of two parts, i.e. one radial external part 12.1, which is an integral part of the left end section 10 and a coaxial, radial internal part 12.2, which is designed as an integral part of the bottom end section 14, therefore forming two sections 10-12.1 and/or 14-12.2 of the enclosure assembled in the direction of the central axes of the bore which can be separated again.

A combined rotary and quick-release coupling of the two parts 10.1 and/or 10.2 to be locked to each other, after central intermediate section and therefore the two enclosure halves 10-12.1 and/or 14-12.2 is formed by several biased tabs 16 of the part 12.2 of the same and an annular area 18 of its other part 12.1 - as described hereafter.

In addition to the engaging mechanism not shown at the rotary coupling to stop the enclosure section in a specific rotary position to each other in order to make the solid angle formed by the two halves level, radially enclosed, actually clamped O-ring 20 is

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provided for sealing the joint in the enclosure at the parting point of the intermediate section 10.

All options and alternatives of the first embodiment have the common feature that the parallel tabs 16 are projecting radially to the inside.

Fig. 1, the internal axial annular area 18 of the more or less cylindrical part 12.1 of the intermediate section - which is formed in Fig. 1a by semicircular sectional raised rings, in Fig. 1b by saw tooth-shaped sectional raised rings and in Fig. 1c by rectangular sectional raised rings and in any case by base section separating the rings - appropriate sectional recesses in the tabs 16.

An axial stop, when plugging the two enclosure halves together result simultaneously by abutting of free tab end and the mount of the O-ring 20 on the one and/or other half. In the alternative, four hooks 22 are moulded on the free tab ends according to Fig. 2, forming a continuous tapered sheath area 24, engaging behind an annular area 18' provided behind a radial plane, therefore extending radially. The four tabs 16 of the example, for instance, are divided radially towards the outside and relieved in a circular cylindrical surface 26 of the radial external part 12.1 of the intermediate section.

The second embodiment corresponds to the hooking principle of the alternative (see Fig. 2) of the first and is mainly differentiated by the fact that, for instance, the four tabs 16' are provided with hooks 22', in this case on the other part of the intermediate section 12.1 in reverse axial direction and radially projecting externally, with the annular surface 18'' being designed as a recess external shoulder on the part of the intermediate section 12.2, with four hooks 22' following radially, externally and flashing on this part 12.1, for instance.

The O-Ring has also changed its position and is now provided on the roof the tabs 16'.

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C L A I M S

- 1.) An angular cable gland for electrical equipment (angular cable gland) including an enclosure consisting of a minimum of two sections (10 and 14) having one continuous bore each, the adjacent axes of which at least intersect after assembly, characterised in that the two end sections (10 and 14) are connected with each other for entry and/or exit of the cable by means of at least one intermediate section (12), preferably a central section (12), following in an obtuse angle to the two adjacent sections (10 and 14).
- 2.) A cable gland according to Claim 1, characterised in that one of the intermediate sections (12) is divided and its two sections (12.1 and 12.2) are separably connected with each other.
- 3.) A cable gland according to Claim 2, characterised by a rotary coupling of both parts (12.1 and 12.2) of each intermediate section (12), with the rotary axis coinciding with the axis of a bore of this joined section (12).
- 4.) A cable gland according to Claim 2 or 3, characterised by a releasable locking mechanism (quick-release coupling) of the two parts (12.1 and 12.2) of the intermediate section (12) to each other.
- 5.) A waterproof cable gland according to Claim 4 including a seal (20) enclosing the axes of a bore, characterised in that the seal (20) is provided within the area of the locking mechanism.
- 6.) A cable gland according to one of Claims 3 to 5, characterised in that the rotary connection is provided with an engaging mechanism which is effective when the axes of the bore of the two adjacent sections (10 and 14) and the intermediate section (12) connecting the same is on the same level.
- 7.) A cable gland according to one of Claims 4 to 6 characterised in that the locking mechanism on one (12.2) of the two parts (12.1 and 12.2) of the intermediate section (12) includes preferably a radial internal sectional tabs (16) distributed over circumference of the bore and an annular surface (18) of a matching section on the other part (12.1) of this section (12).

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8.) A cable gland according to Claim 7, characterised in that the matching sections of each tab (16) and/or the annular surface (18) are periodically moulded, parallel to the axes in such a way that there is a flush connection of the tabs (16) firmly connected to the annular surface.

9.) A cable gland according to Claim 8, characterised in that the odd section of the annular surface (18) is formed by identical, successive actual semicircular or rectangular of saw tooth-shaped projections.

10.) A cable gland according to Claim 7 or 8, characterised in that the tabs (16) are provided radially with radial external hooks (22) and that the annular surface (18) is designed as a shoulder of the enclosure.

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