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PRODUCT BROCHURE

# ISR™ fittings

## Industrial strain-relief fittings



# ISR fittings

The design standard for high-performance industrial strain-relief fittings

## Temperature range

- -50 °C to 110 °C

## Certifications and standards

- Class/zones system
  - Ex e IIC Gb Ex ta IIIC Da IP66
- Class/divisions system
  - CLI Div2 ABCD CLII Div2 FG CLIII Div2 type 4X

## Certificates

- CSA 14.70009467X
- IECEx CSA 14.0035X
- SIRA 14ATEX3238X
- UL (pending)

## Class I, Zone 1, 2 / Class II, Zone 20, 21, 22



### Ex, e, IIC, Gb

- Group II gas protection “increased safety”
- Where arcs and sparks don’t normally occur
- IIC: acetylene, hydrogen and all other gases

### Ex, ta, IIIC, Da

- Dust atmospheres
- IIIC: conductive and other types of dusts

### IP66

- Ingress protection
- Dust-tight and powerful water jets



## Zone 1, 2, 20, 21, 22 / Class I Division 2 and Class II, III Division 1



### CLI, DIV2, ABCD

- Gas and vapors protection
  - A: acetylene
  - B: hydrogen
  - C: ethylene
  - D: propane and methane

### CLII, DIV1, EFG

- Dust protection
  - E: Metal
  - F: Coal
  - G: Flour, grain

### CLIII, DIV1

- Fibers and flyings protection

### Type 4X

- Environmental protection from dust and water
- Corrosion resistant

## Class I, Zone 1, 2, 20, 21, 22 /

## Class I, II, III Division 2



### Class I, Zone 1, AEx, e, IIC

- Gas protection “increased safety”
- Where arcs and sparks don’t normally occur
- IIC: acetylene, hydrogen and all other gases

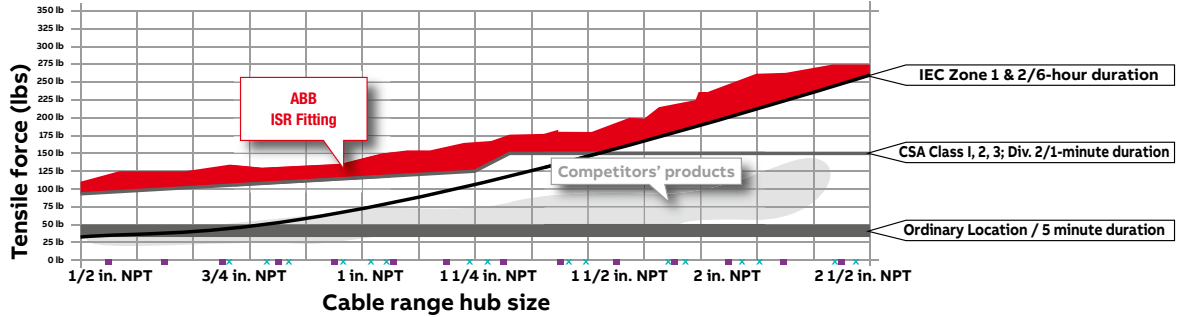
### Zone 20, AEx, ta

- Dust atmospheres
- IIC: conductive and other types of dusts

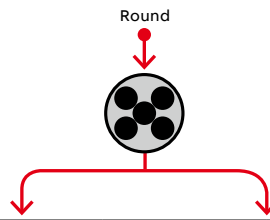
# ISR fittings

Superior 100% pull-out performance with no external clamping

01 Tensile force vs. cable range hub size  
The ISR fitting consistently exceeds IEC standards for 100% pull-out resistance with no external cable clamping.



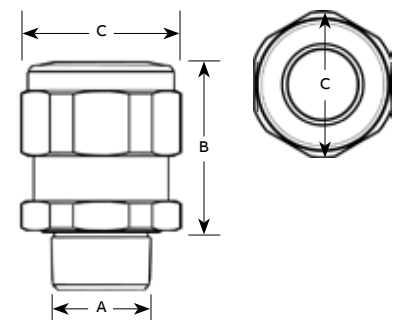
01



## Ordering information

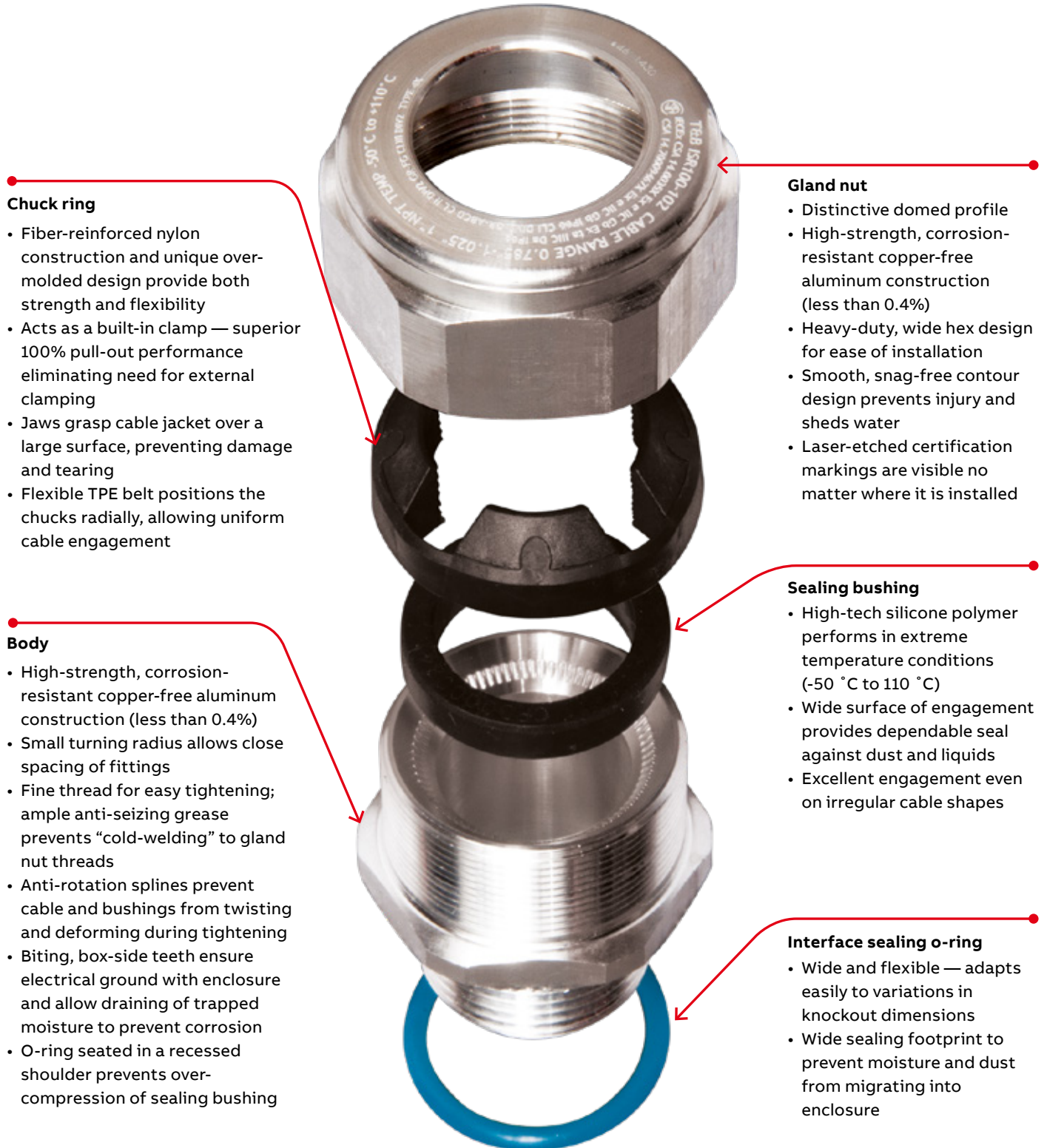
Cat. no.	Hub size in.	Torque lbf-in. (Nm)	Throat dia. in. (mm)	Min. dia. in. (mm)	Max. dia. in. (mm)	A (thread)	B (ref.) <sup>†</sup> in. (mm)	C (O.D.) in. (mm)
ISR050-053	1/2	400 (45.19)	0.535 (13.59)	0.325 (8.25)	0.525 (13.34)	0.5-14 NPT	1.65 (41.91)	1.350 (34.29)
ISR050-062	1/2	400 (45.19)	0.630 (16.00)	0.425 (10.79)	0.620 (15.75)	0.5-14 NPT	1.683 (42.75)	1.500 (38.10)
ISR075-082	3/4	600 (67.79)	0.825 (20.96)	0.585 (14.86)	0.815 (20.70)	0.75-14 NPT	1.790 (45.47)	1.700 (43.18)
ISR100-102	1	800 (90.39)	1.035 (26.29)	0.785 (19.94)	1.025 (26.04)	1-11.5 NPT	1.818 (46.18)	1.900 (48.26)
ISR125-122	1 1/4	1100 (124.28)	1.225 (31.12)	0.985 (25.02)	1.215 (30.86)	1.25-11.5 NPT	1.993 (50.62)	2.320 (58.93)
ISR125-137	1 1/4	1100 (124.28)	1.380 (35.05)	1.185 (30.10)	1.370 (34.80)	1.25-11.5 NPT	1.918 (48.72)	2.320 (58.93)
ISR150-156	1 1/2	1300 (146.88)	1.560 (39.62)	1.335 (33.91)	1.550 (39.37)	1.50-11.5 NPT	1.945 (49.40)	2.580 (65.53)
ISR200-179	2	1600 (180.77)	1.795 (45.59)	1.525 (38.73)	1.785 (45.34)	2-11.5 NPT	2.017 (51.23)	3.012 (76.50)
ISR200-206	2	1600 (180.77)	2.070 (52.58)	1.755 (44.58)	2.055 (52.20)	2-11.5 NPT	2.010 (51.05)	3.200 (81.28)

## Diagrams



<sup>†</sup> Reference dimension before installation.

## The ISR difference



### Chuck ring

- Fiber-reinforced nylon construction and unique overmolded design provide both strength and flexibility
- Acts as a built-in clamp — superior 100% pull-out performance eliminating need for external clamping
- Jaws grasp cable jacket over a large surface, preventing damage and tearing
- Flexible TPE belt positions the chucks radially, allowing uniform cable engagement

### Body

- High-strength, corrosion-resistant copper-free aluminum construction (less than 0.4%)
- Small turning radius allows close spacing of fittings
- Fine thread for easy tightening; ample anti-seizing grease prevents “cold-welding” to gland nut threads
- Anti-rotation splines prevent cable and bushings from twisting and deforming during tightening
- Biting, box-side teeth ensure electrical ground with enclosure and allow draining of trapped moisture to prevent corrosion
- O-ring seated in a recessed shoulder prevents over-compression of sealing bushing

### Gland nut

- Distinctive domed profile
- High-strength, corrosion-resistant copper-free aluminum construction (less than 0.4%)
- Heavy-duty, wide hex design for ease of installation
- Smooth, snag-free contour design prevents injury and sheds water
- Laser-etched certification markings are visible no matter where it is installed

### Sealing bushing

- High-tech silicone polymer performs in extreme temperature conditions (-50 °C to 110 °C)
- Wide surface of engagement provides dependable seal against dust and liquids
- Excellent engagement even on irregular cable shapes

### Interface sealing o-ring

- Wide and flexible — adapts easily to variations in knockout dimensions
- Wide sealing footprint to prevent moisture and dust from migrating into enclosure

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## ISR™ fittings

# Meet 100% of cable pull-out requirements with no need for external clamping

Developed for the drill rig industry, with input from industry end users.

—  
The next generation of globally certified industrial strain-relief fittings: ISR fittings

The latest in ABB's long line of renowned industrial cable termination products, the ISR fitting was developed in Canada with input from end users in the oil and gas industry. This is a high-level solution for industrial end users looking for a superior-quality fitting that reduces installation time and costs while surpassing global standards for pull-out requirements.

The majority of strain-relief fittings on the market today are designed to meet 25% of the IEC pull-out requirements for surface applications and, as per IEC standard 60079, require that the installer provide additional clamping as close as possible to the point at which cables exit the enclosure to ensure that pulling and twisting are not transferred to the terminations. The external clamping requirement adds time, complexity and cost to the installation process. In the event that additional clamping is not provided, the integrity of electrical systems as well as compliance with IEC standards is compromised.

With its unique design and integral clamping mechanism, the Kopex-Ex ISR fitting allows you to meet 100% of IEC cable pull-out requirements with no external clamping, thereby reducing installation time, complexity and costs.



## Meet 100% of cable pull-out requirements with no need for external clamping.

### Applications

#### Tray cable

Complies with IEC requirements when used with enclosures containing no arcing or sparking devices. For enclosures with arcing or sparking devices, ISR fittings must be used in combination with a certified Class I hazardous location sealing fitting.

Note: Tray cable is not suitable for use in Zone 1 locations.

#### Portable cord

Complies with IEC requirements when used with enclosures containing no arcing or sparking devices. For enclosures with arcing or sparking devices, ISR fittings must be used in combination with a certified Class I hazardous location sealing fitting. Portable cord can be used in Zone 1 applications only when installed on portable equipment.

### Utilization

For use with unarmored cable types suitable for use in Class I, Zone 1 (e.g. extra hard usage cord). When used with tray cables, series ISR cable glands are suitable to be installed in Class I, Zone 2/Div. 2 classified hazardous location area according to CEC/NEC wiring method, or subject to local inspection authority having jurisdiction.

### NEC or USA requirements

For installations in accordance with the NEC in Class I Zone 1, the ISR fitting can be used only with listed extra-hard usage cord or listed TC-ER-HL cable having a diameter up to and including 1 inch. Additionally, for Zone 20 applications, only extra-hard usage cord can be used. Refer to NEC wiring methods for additional details and local inspection authority for more information.

### Competition

- 25% pull-out resistance
- External clamping required



### ISR fitting

- 100% pull-out resistance
- No external clamping required