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Dual Core Clamps

Static Grounding Clamps and Cables

Dual Core Clamps

Static grounding systems like the Bond-Rite® and Earth-Rite® range combine interlock control and visual indication to verified ground connection points and offer the highest levels of protection over electrostatic ignition risks.

Newson Gales' approved dual core static grounding clamps ensure positive contact with the equipment to be grounded.

When flammable or combustible products are being handled and processed in hazardous areas it is essential to specify certified equipment that will protect personnel from sources of electrostatic ignition.

Dual Core Clamp Benefits

- **Positive Contact** - the powerful combination of sharpened tungsten carbide tips supported by a positive spring mechanism ensures coatings, product deposits or corrosion does not prevent the clamp from connecting directly to the equipment to be grounded.
- **Ergonomic** - Dual core clamps are designed to be easy to grip and open aiding operators having to make repetitive daily grounding connections.
- **Long Term Value** - additional value is provided by the corrosion resistant and mechanically robust stainless steel construction which helps reduce long term replacement costs that are typical of lower quality grounding clamps.

Static grounding clamps that combine Factory Mutual & ATEX / IECEx approvals are rigorously tested and certified to ensure they are capable of dissipating static charges from potentially charged equipment. This is especially significant when the equipment can be covered in coatings, product deposits or rust that is capable of preventing the clamp from making low resistance electrical contact with the equipment to be grounded.

Establishing a solid electrical connection can only be achieved by penetrating any connection inhibitors like coatings, product deposits and rust. Factors like this will impede the dissipation of static charges from the object to ground if the clamp is not capable of penetrating them and making a connection to the base metal of the container or vessel. Once a strong connection is established, it is vital that this connection remains constant for the duration of the process operation.

Factory Mutual approved clamps undergo a series of mechanical and electrical tests to ensure they can function as reliable static grounding clamps in EX / HAZLOC areas.

ATEX / IECEx certification ensures there are no sources of mechanical sparking, like thermite reactive materials such as aluminium, or sources of stored mechanical energy, present in the construction of the clamp.

Dual Core Static Grounding Clamps and Cables

5 good reasons to specify FM, ATEX and IECEx approved clamps

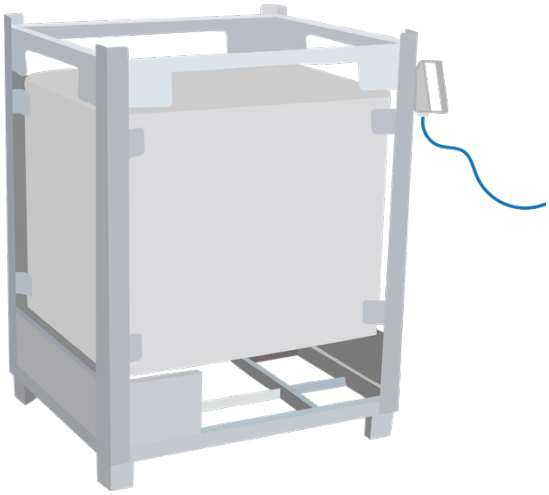
- **Clamp Pressure Testing** - ensures the grounding clamp is capable of establishing and maintaining low resistance electrical contact with equipment (FM approvals).
- **Electrical Continuity Testing** - ensures the electrical continuity from the teeth throughout the grounding clamp is less than 1 Ohm (FM approvals).
- **High Frequency Vibration Testing** - ensures the grounding clamp is capable of maintaining positive contact when attached to vibrating equipment (FM approvals).
- **Mechanical Pull Testing** - ensures the grounding clamp cannot be pulled off the equipment without an intentional application of force (FM approvals).
- **Sources of mechanical sparking** - ensures no mechanical sparking sources are present in the clamp (IECEx/ATEX certification).

Both IEC TS 60079-32-1,13.4.1 and NFPA 77, 7.4.1.6 & 7.4.1.4 state:

Temporary connections can be made using bolts, pressure-type earth (ground) clamps, or other special clamps. Pressure-type clamps should have sufficient pressure to penetrate any protective coating, rust, or spilled material to ensure contact with the base metal with an interface resistance of less than 10 Ω*.

Where wire conductors are used, the minimum size of the bonding or earthing wire is dictated by mechanical strength, not by its current-carrying capacity. Stranded or braided wires should be used for bonding wires that will be connected and disconnected frequently.

*the underlined wording is additional wording present in IEC TS 60079-32-1.



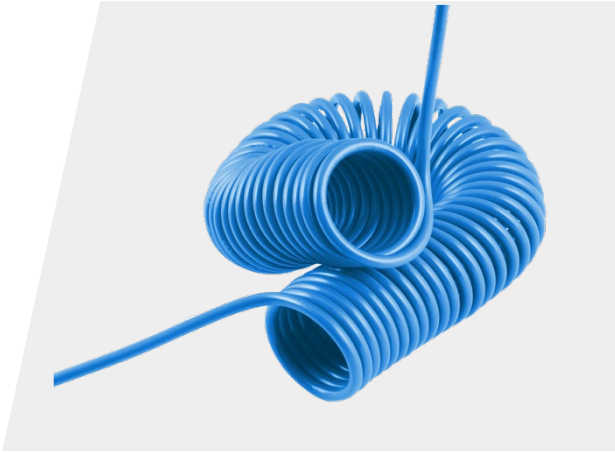
Equipment can only be grounded by ensuring a low resistance connection to verified true earth grounding points (e.g. copper bus-bars). Other equipment used in the process can be bonded to the equipment that is grounded ensuring static electricity does not accumulate on the equipment in the overall system.

To remove static electricity from the EX/HAZLOC atmosphere grounding clamps should be capable of achieving connections to equipment with resistance values that do not exceed 10 Ohms.in the overall system.

Warning!

Drums and containers can have typical coating thicknesses of 675 micro-metres. Product deposits on drums and containers can result in thicknesses of up to several millimetres. The flat surfaces of basic welding clamps and battery clips are not designed to penetrate such coatings. It is of critical importance to specify clamps that can make regular and positive electrical contact with the conductive parts of the container. This will ensure that every time a process capable of generating static charges is carried out the risk of an incendive static spark discharge is reduced to an acceptable level.

Static Grounding clamps with Cen-Stat cable

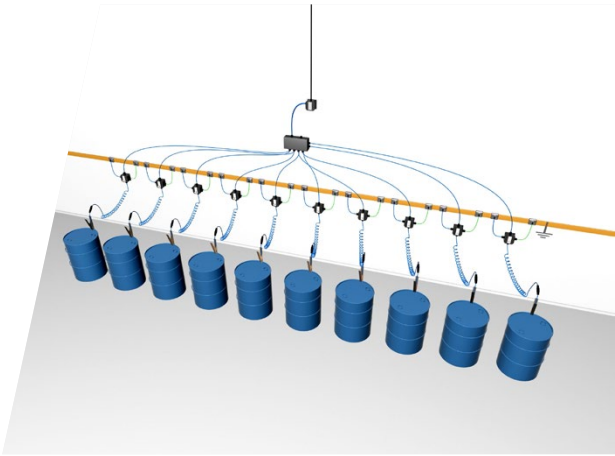


What is Cen-Stat™ cable?

Cen-Stat is a coating and conductor formula based on Newson Gale's 30 plus years of experience of the rigorous demands of industrial work environments. It combines the features of a well-respected DuPont thermoplastic elastomer that provides a wide operating temperature range, resistance to a wide range of chemical products and enhanced mechanical durability.

Included in our Cen-Stat formulation is static dissipative material that prevents the cable from carrying an electrostatic charge and additives that provide protection against exposure to ultra-violet light.

The Cen-Stat dual core cable contains red and black 1 mm^2 cored wires surrounding by a white bedding material and sheathed in blue Hytrel® and its overall diameter is 7.5 mm (0.3").



Cen-Stat Cable

Equipment specifiers can order dual core Cen-Stat cable on standard spiral lengths of 3 m (10 ft.), 5 m (16 ft.), 10 m (32 ft.), 15 m (50 ft.) and 30 m (100 ft.) of cable.

The spiral cable provides effective retractability when the clamp is not in use, ensuring the cable is neatly stowed and safely out of the way.

What are the benefits of using tungsten carbide teeth?

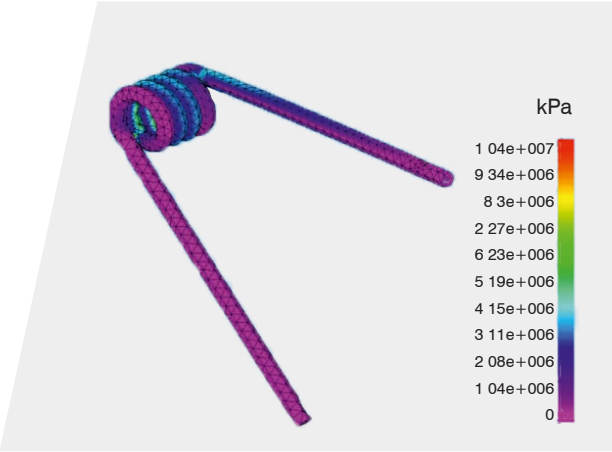
Tungsten carbide is one of the hardest materials in use in industry today and when used in combination with a well designed clamp spring, has the capability to continuously bite through coatings, rust or product deposits that a basic alligator clip or welding clamp would struggle with. Sharpened tungsten carbide teeth are a standard feature of Newson Gale's heavy duty clamps.

Tungsten carbide teeth are designed to penetrate electrical impedances caused by rust, coatings and product deposits.

Why is spring design so important?

A grounding clamp's effectiveness at protecting against the ignition of flammable atmospheres should not be judged by how difficult it is to open the clamp handles - that is the result of a poorly designed spring and clamp assembly. A well designed spring and clamp assembly should enable an operator to apply a reasonable amount of torque to open the clamp without causing stress to their hand.

The most important thing to know is what pressure is applied at the business end, i.e. where the clamp teeth are trying to make a solid electrical connection to the equipment at risk of static charging. The combination of spring material, spring diameter, the number of active spring coils and the length of the spring legs have all been factored into Newson Gale grounding clamps to balance operator ergonomics with a clamping force that can match and exceed the testing requirements of Factory Mutual.



Newson Gale springs are designed and analysed with the aid of Finite Element Analysis technologies.

What are the benefits of using magnets?

Grounding clamps are typically designed around torsion or compression springs. The spring type grounding clamps are ideal for many different applications. However, attaching a spring based grounding clamp to a flat (metal IBC) or curving surface (body of a drum) is not normally possible.

Newson Gale have produced a dual core magnetic grounding clamp that capitalises on the power of magnetism to provide a strong low resistance connection (≤10 Ohms) to any ferrous metal surface e.g. body of a ferrous metal IBC, drum, tote, etc. This will allow drums to be filled, the cover plate fitted over the open top complete with extract connection and still ground the ferrous metal based drum with the VESX50-IP dual core magnetic grounding clamp.

VESX90-IP - Large size heavy duty static grounding clamp with Cen-Stat cable

Applications:	Grounding and bonding metal objects ranging from 55 gallon drums to large metal totes and IBCs
Clamp Material:	Stainless Steel (SS grade: 304)
Operating Temperature:	-40˚C to +60˚C
Dimensions:	240 mm x 105 mm x 33 mm (9.4” x 4.1” x 1.3”)
Maximum Jaw Opening:	30 mm (1.8”) approx.
Clamp Teeth:	2 tungsten carbide teeth - set side by side in a stainless steel mounting block for extra stability
Spring:	Torsion spring (3.5 turn design) Stainless steel (SS Grade: 302)
ATEX / FM / IECEx Certification:	Ex II 1 GD T6 (Assessed to EN 13463-1 : 2009) ATEX certificate number: Sira 02ATEX9381 FM Certificate of Compliance number: 3046346 IECEx Ex h IIC T6 Ga Ex h IIIC T85°C Da Ta = -40°C to +60°C IECEx EXV 20.0033
Cable Supplied:	3 m (10 ft), 5 m (16 ft), 10 m (32 ft) or 15 m (50 ft) 2 pole Cen-Stat blue spiral cable with Hytrel coating which has colour, UV protective and static dissipative additives
Wire Diameter:	Conductor cross sectional area - 1 mm² (11 AWG) approx. Copper With Cen-Stat coating - 7.5 mm (0.3”) diameter

VESX45-IP - Medium size heavy duty static grounding clamp with Cen-Stat cable

Applications:	Grounding and bonding metal objects ranging from small cans to 55 gallon drums
Clamp Material:	Stainless Steel (SS grade: 304)
Operating Temperature:	-40˚C to +60˚C
Dimensions:	120 mm x 65 mm x 25 mm (4.7” x 2.6” x 1.0”)
Maximum Jaw Opening:	15 mm (0.6”) approx.
Clamp Teeth:	2 tungsten carbide teeth - set side by side in a stainless steel mounting block for extra stability
Spring:	Torsion spring (4 turn design) Stainless steel (SS Grade: 302)
ATEX / FM / IECEx Certification:	Ex II 1 GD T6 (Assessed to EN 13463-1 : 2009) ATEX certificate number: Sira 02ATEX9381 FM Certificate of Compliance number: 3046346 IECEx Ex h IIC T6 Ga Ex h IIIC T85°C Da Ta = -40°C to +60°C IECEx EXV 20.0033
Cable Supplied:	3 m (10 ft), 5 m (16 ft), 10 m (32 ft) or 15 m (50 ft) 2 pole Cen-Stat blue spiral cable with Hytrel coating which has colour, UV protective and static dissipative additives
Wire diameter:	Conductor cross sectional area - 1 mm² (11 AWG) approx. Copper With Cen-Stat coating - 7.5 mm (0.3”) diameter

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Surface Mount Connector static grounding clamp

Applications:	Grounding and bonding metal objects such as large metal totes and IBCs
Clamp Material:	Stainless Steel (SS grade: 304 body) Viton (O-Ring) Polyacetal (Tip Housing) Tungsen Carbide Tip
Ingress Protection:	IP66
Operating Temperature:	-40°C to +60°C
Dimensions:	72 mm x 49 mm DIA
Weight:	0.20 kgs (nett)
IECEx Certification:	IECEx Ex h IIC T6 Ga Ex h IIIC T85°C Da Ta = -40°C to +60°C IECEx EXV 20.0033
Cable Supplied:	3 m (10 ft), 5 m (16 ft), 10 m (32 ft) or 15 m (50 ft) 2 pole Cen-Stat blue spiral cable with Hytrel coating which has colour, UV protective and static dissipative additives
Wire Diameter:	Conductor cross sectional area - 1 mm² (11 AWG) approx. Copper With Cen-Stat coating - 7.5 mm (0.3") diameter

Magnetic Clamp static grounding clamp

Applications:	Grounding and bonding metal objects ranging from small cans to 55 gallon drums
Clamp Material:	Stainless Steel SS304/A2 Body, Stainless Steel Springs, Nylon, Viton 'O' Ring, Tungsten Carbide Tips and Neodymium Magnets
Operating Temperature:	-40˚C to +60˚C
Dimensions:	133 mm x 36 mm x 96 mm
Weight:	0.52 kgs (nett)
IECEx Certification:	Ex h IIC T6 Ga Ex h IIIC T85°C Da Ta = -40°C to +60°C IECEx EXV 20.0033
Cable Supplied:	3 m (10 ft), 5 m (16 ft), 10 m (32 ft) or 15 m (50 ft) 2 pole Cen-Stat blue spiral cable with Hytrel coating which has colour, UV protective and static dissipative additives
Wire Diameter:	Conductor cross sectional area - 1 mm² (11 AWG) approx. Copper With Cen-Stat coating - 7.5 mm (0.3") diameter

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