



A DIVISION OF CASK ELECTRIC

GRP CABLE SYSTEMS

GRP ELECTRICAL CONDUITS

Reinforced thermosetting resin conduit (RTRC), 1/2 to 8 inch, for corrosive, wet and outdoor electrical installations.



CORROSION FREE



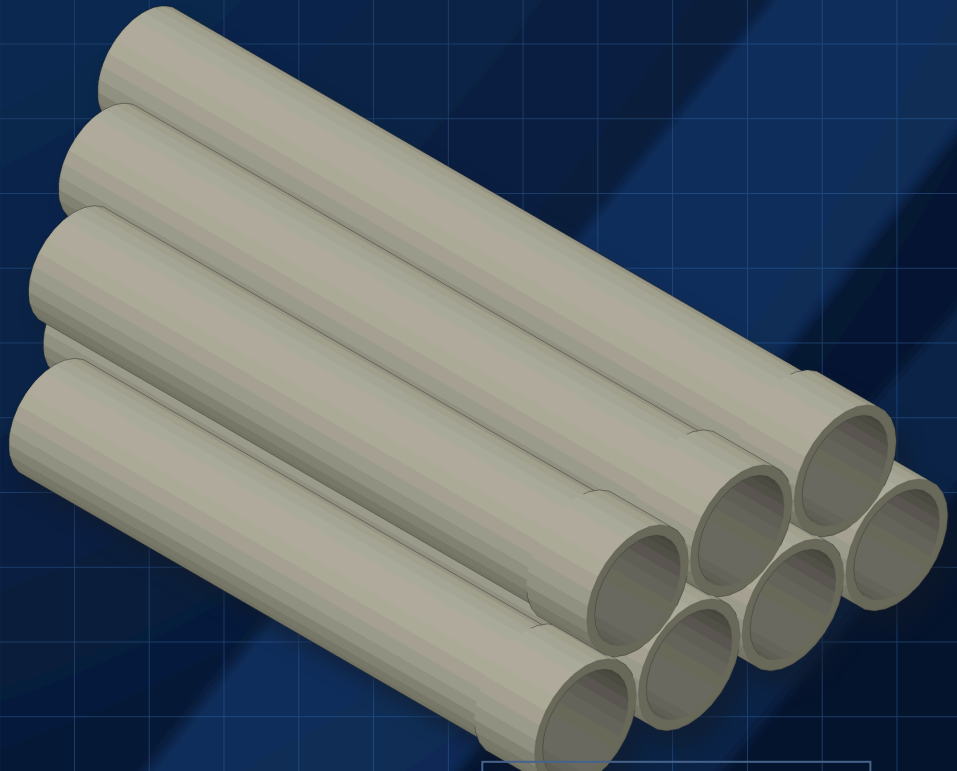
LIGHTWEIGHT



NON-CONDUCTIVE



HALOGEN FREE



CATALOGUE

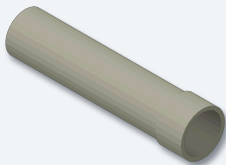
2026

NEMA TC 14 · UL 2515 · UL 2420

SYSTEM AND ITEM NUMBERS

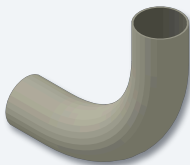
One conduit system, one ordering logic

CASK GRP conduit is filament wound from continuous E-glass roving and epoxy resin. Conduits, elbows and fittings share the same trade sizes and bell-and-spigot joint, so one system covers above-ground, exposed and buried routes.



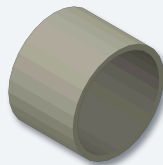
Conduits

SW, HW and XW wall above ground; BG duct below ground. 1/2 to 8 inch, 3.05 m and 6.10 m lengths with integral bell.



Elbows

90°, 45°, 30° and 22.5°, standard radius and long sweeps up to 1,220 mm for long cable pulls.



Fittings

Couplings, NPT adapters, end bells, expansion joints, clamps and epoxy adhesive kits.

Main number	Product group	Use
CGR-CD001	Conduit, standard wall (SW)	Above ground, exposed and concealed. UL 2515 / NEMA TC 14.AG.
CGR-CD002	Conduit, heavy wall (HW)	Above ground where mechanical protection is needed. UL 2515 / NEMA TC 14.AG.
CGR-CD003	Conduit, extra heavy wall (XW)	Exposed runs, bridges, plants and traffic areas. UL 2515A / NEMA TC 14.AG.
CGR-CD004	Duct, below ground (BG)	Direct burial and concrete-encased duct banks. UL 2420 / NEMA TC 14.BG.
CGR-CD011 - CD014	Elbows 90°, 45°, 30° and 22.5°	Standard and long-sweep radii, SW and HW wall.
CGR-CD021	Couplings	Bell-and-spigot sleeve, bonded with CASK epoxy adhesive.
CGR-CD022	Threaded adapters (NPT)	Transition to steel conduit, boxes and enclosures.
CGR-CD023	End bells	Flared entry into manholes, pits and pull boxes.
CGR-CD024	Expansion joints	100 mm and 200 mm stroke for long exposed runs.
CGR-CD025	Conduit clamps and straps	GRP and stainless steel 316 fixings.
CGR-CD026	Epoxy adhesive kits	Two-part kit sized by the number of joints.

How to read a CASK conduit item number

CGR	-	CD001	-	400	-	6
CGR		CD001		400		6
CASK GRP cable systems		Product: CD conduit family, 001 standard wall		Trade size code, see the table below		Length: 6 = 6.10 m (20 ft), 3 = 3.05 m (10 ft)

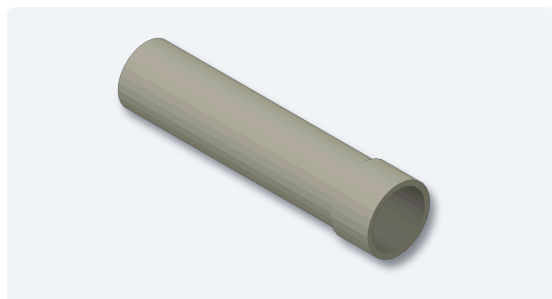
Elbows add the centre-line radius and the wall: **CGR-CD011-400-R405-SW** is a 4 inch 90° elbow, radius 405 mm, standard wall.
Fittings for heavier walls add the wall code: **CGR-CD021-400-HW** is a 4 inch coupling for heavy wall conduit.

1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	5"	6"	8"
012	034	100	114	112	200	212	300	312	400	500	600	800

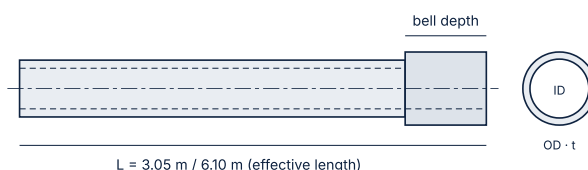
Trade size (top) and the size code used in the item number (bottom).

CONDUITS · ABOVE GROUND

GRP conduit, standard and heavy wall



- Filament-wound E-glass and anhydride-cured epoxy, about 70% glass by weight
- Integral bell on one end; joints bonded with CASK two-part epoxy adhesive
- UV-stabilised, smooth grey outer surface; low-friction bore for long cable pulls
- Non-conductive and non-magnetic: no bonding to the earthing system needed
- Operating range -40 °C to +110 °C; halogen free
- Designed to NEMA TC 14.AG and UL 2515, trade sizes compatible with steel conduit fittings



Standard wall (SW)

General above-ground runs, ceilings, cable trays and walls

CGR-CD001

Trade size	DN	ID mm	OD mm	Wall t mm	Bell mm	Weight kg/m	Part number 6.10 m	Part number 3.05 m
1/2"	15	15.8	19.4	1.8	50	0.19	CGR-CD001-012-6	CGR-CD001-012-3
3/4"	20	20.9	24.5	1.8	50	0.25	CGR-CD001-034-6	CGR-CD001-034-3
1"	25	26.6	30.2	1.8	50	0.31	CGR-CD001-100-6	CGR-CD001-100-3
1-1/4"	32	35.1	38.7	1.8	50	0.41	CGR-CD001-114-6	CGR-CD001-114-3
1-1/2"	40	40.9	44.5	1.8	50	0.47	CGR-CD001-112-6	CGR-CD001-112-3
2"	50	52.5	56.1	1.8	50	0.60	CGR-CD001-200-6	CGR-CD001-200-3
2-1/2"	65	62.7	66.7	2.0	75	0.79	CGR-CD001-212-6	CGR-CD001-212-3
3"	80	77.9	81.9	2.0	75	0.98	CGR-CD001-300-6	CGR-CD001-300-3
3-1/2"	90	90.1	94.1	2.0	75	1.13	CGR-CD001-312-6	CGR-CD001-312-3
4"	100	102.3	106.3	2.0	75	1.28	CGR-CD001-400-6	CGR-CD001-400-3
5"	125	128.2	132.8	2.3	100	1.84	CGR-CD001-500-6	CGR-CD001-500-3
6"	150	154.1	158.7	2.3	100	2.20	CGR-CD001-600-6	CGR-CD001-600-3
8"	200	202.7	208.3	2.8	125	3.52	CGR-CD001-800-6	CGR-CD001-800-3

Heavy wall (HW)

Exposed runs needing higher impact and crush resistance

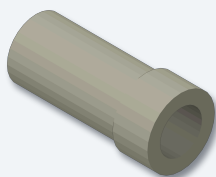
CGR-CD002

Trade size	DN	ID mm	OD mm	Wall t mm	Bell mm	Weight kg/m	Part number 6.10 m	Part number 3.05 m
1/2"	15	15.8	20.8	2.5	50	0.28	CGR-CD002-012-6	CGR-CD002-012-3
3/4"	20	20.9	25.9	2.5	50	0.36	CGR-CD002-034-6	CGR-CD002-034-3
1"	25	26.6	31.6	2.5	50	0.45	CGR-CD002-100-6	CGR-CD002-100-3
1-1/4"	32	35.1	40.1	2.5	50	0.58	CGR-CD002-114-6	CGR-CD002-114-3
1-1/2"	40	40.9	45.9	2.5	50	0.66	CGR-CD002-112-6	CGR-CD002-112-3
2"	50	52.5	57.5	2.5	50	0.84	CGR-CD002-200-6	CGR-CD002-200-3
2-1/2"	65	62.7	68.3	2.8	75	1.12	CGR-CD002-212-6	CGR-CD002-212-3
3"	80	77.9	83.5	2.8	75	1.38	CGR-CD002-300-6	CGR-CD002-300-3
3-1/2"	90	90.1	95.7	2.8	75	1.59	CGR-CD002-312-6	CGR-CD002-312-3
4"	100	102.3	107.9	2.8	75	1.80	CGR-CD002-400-6	CGR-CD002-400-3
5"	125	128.2	134.6	3.2	100	2.58	CGR-CD002-500-6	CGR-CD002-500-3
6"	150	154.1	160.5	3.2	100	3.08	CGR-CD002-600-6	CGR-CD002-600-3
8"	200	202.7	210.3	3.8	125	4.81	CGR-CD002-800-6	CGR-CD002-800-3

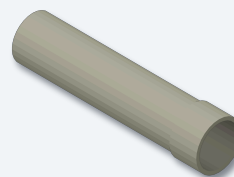
Dimensions are nominal. Weight per metre of conduit without bell. Other lengths and colours on request.

CONDUITS · EXTRA HEAVY WALL AND BELOW GROUND

Extra heavy wall conduit and below-ground duct



- Wall about twice the standard wall for crush and impact resistance
- For exposed runs on bridges, plants, jetties and traffic areas
- Designed to UL 2515A extra heavy wall requirements



- Thin-wall duct for direct burial or concrete-encased duct banks
- Light and long: fewer joints and fast laying in trenches
- Designed to NEMA TC 14.BG and UL 2420; not for exposed above-ground use

Extra heavy wall (XW)

Above ground, maximum mechanical protection

CGR-CD003

Trade size	DN	ID mm	OD mm	Wall t mm	Bell mm	Weight kg/m	Part number 6.10 m	Part number 3.05 m
1/2"	15	15.8	22.6	3.4	50	0.40	CGR-CD003-012-6	CGR-CD003-012-3
3/4"	20	20.9	27.7	3.4	50	0.51	CGR-CD003-034-6	CGR-CD003-034-3
1"	25	26.6	33.4	3.4	50	0.62	CGR-CD003-100-6	CGR-CD003-100-3
1-1/4"	32	35.1	41.9	3.4	50	0.80	CGR-CD003-114-6	CGR-CD003-114-3
1-1/2"	40	40.9	47.7	3.4	50	0.92	CGR-CD003-112-6	CGR-CD003-112-3
2"	50	52.5	59.3	3.4	50	1.16	CGR-CD003-200-6	CGR-CD003-200-3
2-1/2"	65	62.7	70.3	3.8	75	1.55	CGR-CD003-212-6	CGR-CD003-212-3
3"	80	77.9	85.5	3.8	75	1.90	CGR-CD003-300-6	CGR-CD003-300-3
3-1/2"	90	90.1	97.7	3.8	75	2.19	CGR-CD003-312-6	CGR-CD003-312-3
4"	100	102.3	109.9	3.8	75	2.47	CGR-CD003-400-6	CGR-CD003-400-3
5"	125	128.2	137.0	4.4	100	3.57	CGR-CD003-500-6	CGR-CD003-500-3
6"	150	154.1	162.9	4.4	100	4.27	CGR-CD003-600-6	CGR-CD003-600-3

Below-ground duct (BG)

Direct burial and concrete encasement, 2 to 8 inch

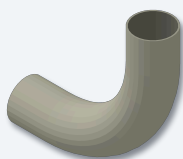
CGR-CD004

Trade size	DN	ID mm	OD mm	Wall t mm	Bell mm	Weight kg/m	Part number 6.10 m	Part number 3.05 m
2"	50	52.5	55.5	1.5	50	0.50	CGR-CD004-200-6	CGR-CD004-200-3
2-1/2"	65	62.7	66.1	1.7	75	0.67	CGR-CD004-212-6	CGR-CD004-212-3
3"	80	77.9	81.3	1.7	75	0.83	CGR-CD004-300-6	CGR-CD004-300-3
3-1/2"	90	90.1	93.5	1.7	75	0.96	CGR-CD004-312-6	CGR-CD004-312-3
4"	100	102.3	105.7	1.7	75	1.08	CGR-CD004-400-6	CGR-CD004-400-3
5"	125	128.2	132.2	2.0	100	1.60	CGR-CD004-500-6	CGR-CD004-500-3
6"	150	154.1	158.1	2.0	100	1.91	CGR-CD004-600-6	CGR-CD004-600-3
8"	200	202.7	207.5	2.4	125	3.02	CGR-CD004-800-6	CGR-CD004-800-3

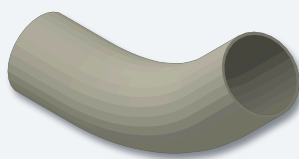
Below-ground duct is joined with BG couplings and end bells (add -BG to the fitting number). Use SW, HW or XW conduit where the duct rises above ground.

ELBOWS

Elbows 90°, 45°, 30° and 22.5°



90° elbow · CGR-CD011



45° elbow · CGR-CD012



30° elbow · CGR-CD013

■ Same wall build and bell joint as the straight conduit

■ Standard wall (-SW) and heavy wall (-HW); replace -SW with -HW in the number

■ Lay length = $R \times \tan(\text{angle}/2) + \text{tangent}$, for site set-out

■ 22.5° elbows: CGR-CD014, same radius and tangents

Trade size	Radius R mm	Tangent mm	Lay length 90°	45°	30°	22.5°	Part number 90° (SW)	Part number 45° (SW)
1/2"	115	40	155	88	71	63	CGR-CD011-012-R115-SW	CGR-CD012-012-R115-SW
3/4"	125	40	165	92	73	65	CGR-CD011-034-R125-SW	CGR-CD012-034-R125-SW
1"	150	40	190	102	80	70	CGR-CD011-100-R150-SW	CGR-CD012-100-R150-SW
1-1/4"	205	40	245	125	95	81	CGR-CD011-114-R205-SW	CGR-CD012-114-R205-SW
1-1/2"	205	40	245	125	95	81	CGR-CD011-112-R205-SW	CGR-CD012-112-R205-SW
2"	230	40	270	135	102	86	CGR-CD011-200-R230-SW	CGR-CD012-200-R230-SW
2-1/2"	265	50	315	160	121	103	CGR-CD011-212-R265-SW	CGR-CD012-212-R265-SW
3"	330	50	380	187	138	116	CGR-CD011-300-R330-SW	CGR-CD012-300-R330-SW
3-1/2"	380	50	430	207	152	126	CGR-CD011-312-R380-SW	CGR-CD012-312-R380-SW
4"	405	50	455	218	159	131	CGR-CD011-400-R405-SW	CGR-CD012-400-R405-SW
5"	610	75	685	328	238	196	CGR-CD011-500-R610-SW	CGR-CD012-500-R610-SW
6"	760	75	835	390	279	226	CGR-CD011-600-R760-SW	CGR-CD012-600-R760-SW
8"	915	100	1015	479	345	282	CGR-CD011-800-R915-SW	CGR-CD012-800-R915-SW

Long-sweep elbows

2 to 8 inch, 90° and 45°, for long or heavy cable pulls

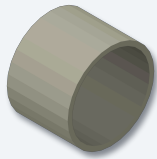
R610 · R915 · R1220

Trade size	R 610 mm (24 in)	R 915 mm (36 in)	R 1220 mm (48 in)	Example part number
2"	●	●	●	CGR-CD011-200-R610-SW
2-1/2"	●	●	●	CGR-CD011-212-R610-SW
3"	●	●	●	CGR-CD011-300-R610-SW
3-1/2"	●	●	●	CGR-CD011-312-R610-SW
4"	●	●	●	CGR-CD011-400-R610-SW
5"	-	●	●	CGR-CD011-500-R915-SW
6"	-	●	●	CGR-CD011-600-R915-SW
8"	-	-	●	CGR-CD011-800-R1220-SW

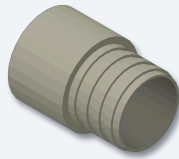
Long sweeps use the same numbers with the larger radius, for example CGR-CD012-600-R1220-HW is a 6 inch 45° elbow, radius 1,220 mm, heavy wall. ● = made.

FITTINGS

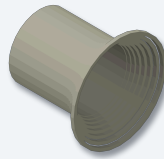
Fittings and accessories



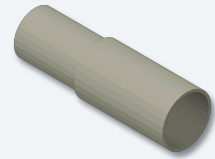
Coupling · CD021



NPT adapter · CD022



End bell · CD023



Expansion joint · CD024

Couplings, adapters, end bells

Shown for SW; add -HW, -XW or -BG for other walls

CGR-CD021 · 022 · 023

Trade size	Coupling L mm	Coupling	NPT adapter, male	End bell
1/2"	110	CGR-CD021-012	CGR-CD022-012	CGR-CD023-012
3/4"	110	CGR-CD021-034	CGR-CD022-034	CGR-CD023-034
1"	110	CGR-CD021-100	CGR-CD022-100	CGR-CD023-100
1-1/4"	110	CGR-CD021-114	CGR-CD022-114	CGR-CD023-114
1-1/2"	110	CGR-CD021-112	CGR-CD022-112	CGR-CD023-112
2"	110	CGR-CD021-200	CGR-CD022-200	CGR-CD023-200
2-1/2"	160	CGR-CD021-212	CGR-CD022-212	CGR-CD023-212
3"	160	CGR-CD021-300	CGR-CD022-300	CGR-CD023-300
3-1/2"	160	CGR-CD021-312	CGR-CD022-312	CGR-CD023-312
4"	160	CGR-CD021-400	CGR-CD022-400	CGR-CD023-400
5"	210	CGR-CD021-500	CGR-CD022-500	CGR-CD023-500
6"	210	CGR-CD021-600	CGR-CD022-600	CGR-CD023-600
8"	260	CGR-CD021-800	CGR-CD022-800	CGR-CD023-800

Expansion joints and clamps

Stroke 100 or 200 mm; GRP or stainless steel 316 straps

CGR-CD024 · 025

Trade size	Expansion joint 100 mm	Expansion joint 200 mm	Clamp GRP	Clamp SS316
1/2"	CGR-CD024-012-S100	CGR-CD024-012-S200	CGR-CD025-012-GRP	CGR-CD025-012-SS
3/4"	CGR-CD024-034-S100	CGR-CD024-034-S200	CGR-CD025-034-GRP	CGR-CD025-034-SS
1"	CGR-CD024-100-S100	CGR-CD024-100-S200	CGR-CD025-100-GRP	CGR-CD025-100-SS
1-1/4"	CGR-CD024-114-S100	CGR-CD024-114-S200	CGR-CD025-114-GRP	CGR-CD025-114-SS
1-1/2"	CGR-CD024-112-S100	CGR-CD024-112-S200	CGR-CD025-112-GRP	CGR-CD025-112-SS
2"	CGR-CD024-200-S100	CGR-CD024-200-S200	CGR-CD025-200-GRP	CGR-CD025-200-SS
2-1/2"	CGR-CD024-212-S100	CGR-CD024-212-S200	CGR-CD025-212-GRP	CGR-CD025-212-SS
3"	CGR-CD024-300-S100	CGR-CD024-300-S200	CGR-CD025-300-GRP	CGR-CD025-300-SS
3-1/2"	CGR-CD024-312-S100	CGR-CD024-312-S200	CGR-CD025-312-GRP	CGR-CD025-312-SS
4"	CGR-CD024-400-S100	CGR-CD024-400-S200	CGR-CD025-400-GRP	CGR-CD025-400-SS
5"	CGR-CD024-500-S100	CGR-CD024-500-S200	CGR-CD025-500-GRP	CGR-CD025-500-SS
6"	CGR-CD024-600-S100	CGR-CD024-600-S200	CGR-CD025-600-GRP	CGR-CD025-600-SS
8"	CGR-CD024-800-S100	CGR-CD024-800-S200	CGR-CD025-800-GRP	CGR-CD025-800-SS

Epoxy adhesive kits

Approximate number of joints per kit

CGR-CD026

Adhesive kit	Volume ml	Joints 1 inch	Joints 2 inch	Joints 4 inch	Joints 6 inch	Joints 8 inch
CGR-CD026-K250	250	58	31	11	5	3
CGR-CD026-K500	500	117	63	22	11	6
CGR-CD026-K1000	1000	234	126	44	22	13

INSTALLATION

Installation guidance

CASK GRP conduit is installed with ordinary hand tools. GRP cannot be bent on site: use factory elbows for every change of direction.

Making a bonded joint

1

Cut
Cut square with a fine-tooth or diamond saw. Wear a dust mask and gloves.

2

Debur
Remove burrs inside and out; chamfer the spigot end slightly.

3

Clean
Sand the spigot and the inside of the bell lightly; wipe clean and dry.

4

Bond
Mix the two-part adhesive and coat the spigot and the bell evenly.

5

Join
Push the spigot fully into the bell with a quarter turn; wipe off excess.

6

Cure
Do not move the joint until the adhesive has set; see the kit for times at site temperature.

Supports

Trade size	Max. support spacing, m
1/2" - 1"	0.9
1-1/4" - 2"	1.5
2-1/2" - 3"	1.8
3-1/2" - 5"	2.1
6" - 8"	2.5

Horizontal runs at up to 25 °C ambient. Reduce spacing by 25% above 50 °C. Support within 300 mm of every box, elbow and expansion joint.

Below ground
Lay BG duct on a level, stone-free sand bed, backfill in layers and follow the burial depth of the local electrical code. In duct banks, use spacers and tie the duct down before pouring concrete.

Thermal expansion

Run length	ΔT 20 °C	ΔT 40 °C	ΔT 60 °C
10 m	4 mm	7 mm	11 mm
30 m	11 mm	22 mm	32 mm
60 m	22 mm	43 mm	65 mm
100 m	36 mm	72 mm	108 mm

$\Delta L = 1.8 \times 10^{-5} \times L \times \Delta T$. Fit an expansion joint where the movement of a straight run between fixed points exceeds 6 mm.

Cable pulling
The smooth bore keeps pulling tension low. Use a water-based pulling lubricant and long-sweep elbows on long or heavy pulls. Fit end bells where cables enter pits and manholes.

TECHNICAL DATA

Material, standards and why GRP

Material properties

Reinforcement	Continuous E-glass roving, filament wound
Resin	Epoxy, anhydride cured, UV stabilised
Glass content	approx. 70% by weight
Density	1.95 g/cm ³
Operating temperature	-40 °C to +110 °C
Thermal expansion	1.8 × 10 ⁻⁵ /°C (axial)
Dielectric strength	> 10 kV/mm
Colour	Grey (RAL 7037); black on request
Halogen content	Halogen free
Joint	Bell and spigot, epoxy bonded

Designed to

NEMA TC 14.AG	RTRC and fittings, above ground
NEMA TC 14.BG	RTRC and fittings, below ground
UL 2515	Above-ground RTRC and fittings
UL 2515A	Extra heavy wall RTRC
UL 2420	Below-ground RTRC and fittings
NEC Article 355	Installation of RTRC
CSA C22.2 No. 2515	Canadian requirements, same scope

GRP compared with steel and PVC conduit

Property	CASK GRP (SW)	Rigid steel (RGS)	PVC Schedule 40
Weight, 4 inch conduit	1.3 kg/m	16.1 kg/m	3.0 kg/m
Corrosion in salt, acids, soil	None	Coating dependent	None
Electrical conductivity	Non - conductive	Conductive	Non - conductive
Upper service temperature	+110 °C	+150 °C	+50 °C
Low-temperature impact	Good to -40 °C	Good	Brittle below 0 °C
Pull-through friction	Low	Medium	Low
Field cutting	Hand saw, no threading	Threading needed	Hand saw

Oil, gas and chemical No rust in acid vapour, brine and hydrocarbon areas.	Water and wastewater Wet, chlorinated and buried service without coating repair.	Bridges and tunnels Light, long runs with expansion joints; no stray-current corrosion.	Solar and utilities Fast to carry and fit on site; UV stable for outdoor runs.
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Typical values for design guidance. Comparison values for steel and PVC are typical published figures for the same trade size.



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For technical submittals and project requirements, contact our engineering team.

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