



HAPPY LINE

The revolutionary mini accessories with 3 entrances, pre-filled with gel and suitable for submersible installations (IPX8).

Designed in 3 dimensions to rapidly insulate and seal the most commonly used connectors. The 3 entrances not only guarantee the extreme flexibility in the range of these products by making possible triple configurations but also by the housing accepting a wide variety of connectors.

ADVANTAGES

- **Extremely versatile - Ready to use - Re-enterable.**
- **For rigid or flexible insulated wires up to 6 mm².**
- **Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.**
- **Small compact and robust.**

Extra flexible membranes

Extra flexible membranes

GEL

Safety closing system



Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- **Class 2** in accordance with CEI 64-8.
- CEI EN 60998-1 - CEI EN 60998-2

🔧 Gel: UL 94-HB 

🌡️ Working temperature: 90°

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

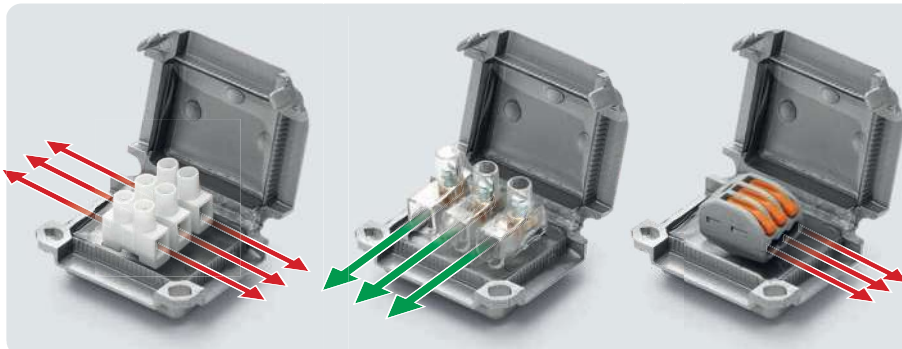
🔑 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

IPX8
OFFICIALLY
TESTED | **IMQ**

Configuration examples



HAPPY 0

PRODUCT	Item	Colour	Pack of (PCS)	Description	Dimension (mm)
HAPPY 0	HAPPY0	●	4	Blister	41 x 28 x 19
HAPPY 0 BOX12	HAPPY0BOX12	○	12	Box	
GEL BOX 0	GELBOX0	○	20	Blister	

IDEAL FOR (or similar):



HAPPY 1

PRODUCT	Item	Colour	Pack of (PCS)	Description	Dimension (mm)
HAPPY 1	HAPPY1	●	2	Blister	45 x 37 x 24
HAPPY 1 BOX10	HAPPY1BOX10	○	10	Box	
GEL BOX 1	GELBOX1	○	15	Blister	

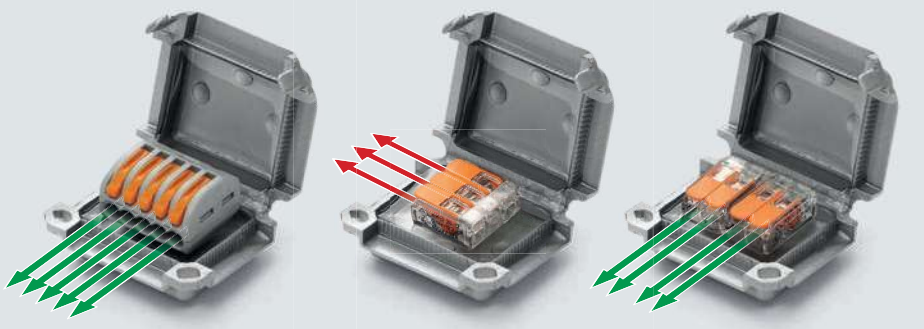
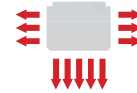
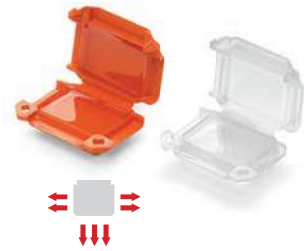
IDEAL FOR (or similar):



HAPPY 2

PRODUCT	Item	Colour	Pack of (PCS)	Description	Dimension (mm)
HAPPY 2	HAPPY2	●	1	Blister	53 x 39 x 24
HAPPY 2 BOX7	HAPPY2BOX7	○	7	Box	
GEL BOX 2	GELBOX2	○	12	Blister	

IDEAL FOR (or similar):



Coloured casings are self-extinguishing according to the **UL 94-V2** standard.



G4J - gel for prefilled joints

G4J is a Polymeric Gel on elastomeric cross linked base, chemically inert and absolutely no toxic.

G4J is UL Recognized Component



For additional information see the UL Online Certifications Directory at

www.ul.com/database

G4J is used for the filling of all **RAYTECH PREFILLED joints and accessories**:

HAPPY, HAPPY JOINT in all packing options;

GEL BOX LINE (ISAAC, PASCAL, WATT, JOULE, KELVIN) in all packing options;

GEL COVER LINE (OHM, BAR, MAMMUT GEL COVER) in all packing options;

NANO JOINT, NANO MAM, NANO FOR,

BRAVO, MINI BRAVO,

LITTLE JOINT LINE (BARNEY, FRED, DINO, BETTY, TOM, BARNEY Y, FRED Y, DINO Y, BOB3, BOB4) in all packing options,

FOX BOX, READY BOX IP68, BABY BOX

RAPID JOINT IP68, RAPIDINO IP68, SUPER CLIK,

KING JOINT, RAPID JOINT, RAPID JOINT System Fast RP, CLIK FIRE,

RAPID JOINT IP68 System Fast RP,

GALACTIC MAMMUT SECURITY, GALACTIC NANO JOINT,

MCA UNIVERSAL IP68, MCA-Y, MCA BOX.

PROPERTY		TEST METHOD / NOTE	UNIT	TYPICAL VALUE
Physical	Aspect	-	-	Gel
	Colour	-	-	Clear and transparent
	Initial Hardness	Penetration cone ASTM D 217/C	1/10 mm	340
	After aging hardness	Penetration cone ASTM D 217/C	1/10 mm	290
	Hardness		-	0 SHORE 00
	Density		g/cc	0,97
	Thermal conductivity	-	W/mK	Approx 0,2
	Continuous working temperature	-	°C	from -60 to +150
	Installation temperature	(related to joints)	°C	from -40 to + 50

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PROPERTY		TEST METHOD / NOTE	UNIT	TYPICAL VALUE
	Water absorption after 30 days immersion	-	%	<< 0,05%
Flammability	Flame class	UL 94	-	HB
	Flammability point	-	°C	>200
	Auto-ignition temperature	-	°C	>400
Electrical	Dielectric strength	-	kV/mm	>20
	Dielectric constant / Permittivity	@ 100Hz	-	2.95
		@ 100kHz	-	2.95
	Power factor / Tan δ	@ 100Hz @ 100kHz	-	0,0025 0,00015
	Volume resistivity	-	Ω cm	2,4 x 10exp 15

DEGREE OF PROTECTION - EN 60529			
PRODUCT LINE	IPX8	IP68	IP69K
HAPPY, HAPPY JOINT	✓		
GEL BOX LINE (ISAAC, PASCAL, WATT, JOULE, KELVIN)	✓		
GEL COVER LINE (OHM, BAR, MAMMUT GEL COVER)	✓		
NANO JOINT, NANO MAM, NANO FOR	✓		
BRAVO, MINI BRAVO	✓		
LITTLE JOINT (BARNEY, FRED, DINO, BETTY, TOM, BARNEY Y, FRED Y, DINO Y, BOB3, BOB4)		✓	✓
READY BOX IP68, FOX BOX		✓	✓
SUPER CLIK,	✓		
RAPID JOINT IP68, RAPIDINO IP68,		✓	
KING JOINT, RAPID JOINT, CLIK FIRE	✓		
RAPID JOINT IP68 SYSTEM FAST RP		✓	
RAPID JOINT SYSTEM FAST RP	✓		
GALACTIC MAMMUT SECURITY, GALACTIC NANO JOINT,	✓		
MCA UNIVERSAL IP68, MCA BOX		✓	✓
MCA-Y		✓	

EXPOSITION TO CHEMICALS OF CROSSLINKED PRODUCT	
Salt, salty water etc	have no adverse effect.
Sea water or chlorine environments (swimming pools etc.)	have no adverse effect.
Inorganic acids in water solutions	have not visible effects.
Strong, pure acids or alkaline (not in solution)	The exposition has to be avoided, especially at high temperature.
Alkaline solutions and vinegar	could bring, after a long time of exposition, to a softening of the external surface.
Solutions of hydrocarbons in water	could give, after a long exposition at quite high temperatures, the hardening of the external surface of the products; of course nothing happens for temporary expositions
Pure hydrocarbons	Permanent immersion in strong and pure hydrocarbons has to be avoided.

SHELF LIFE
Unlimited shelf life, when correctly installed according to the relevant instructions of the accessory.

Settimo Milanese, 05/2021

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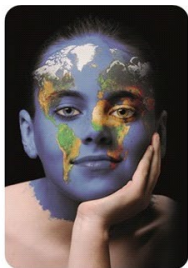
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TDS_G4J_gel_prefilled - 2021/05 - 2/2

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POLYPROPYLENE AUTO-EXTINGUIBLE - UL94 V2

Raw material for the moulding of the casing of the following lines of enclosures:

Materia prima per lo stampaggio della muffola dei seguenti accessori:

Matière première pour la fabrication de l'étui des suivantes accessoires:

- **HAPPY , HAPPY JOINT (with coloured casing/con involucri colorati/ avec boîtes coloré);**
- **GEL BOX LINE (with coloured casing/con involucri colorati/ avec boîtes coloré)**
- **MAMMUT GEL COVER**
- **SUPER CLIK**
- **MINI CLIK**
- **RAPID JOINT IP68,**
- **KING JOINT**
- **RAPID JOINT**
- **CLIK FIRE, CLIK Fire A2A MAGIC JOINT FIRE**
- **RAPID JOINT L RIP68 e RAPID JOINT RP**
- **GALACTIC MAMMUT SECURITY**
- **GALACTIC NANO JOINT 4**
- **MCA Universal IP68**
- **MCA-Y**

The exceptionally robust insulating plastic casing is chemically inert, made in self-extinguishing and not flame propagating material.

L'involucro plastico isolante di eccezionale robustezza è chimicamente inerte, realizzato con materiale autoestinguente non propagante la fiamma.

L'étui en plastique isolant d'une excellente résistance est chimiquement inertes, réalisé dans un matériau auto-extinguible, qui ne propage pas la flamme.

PROPERTIES – Proprietà - Propriétés	UNIT Unità Unité	TYPICAL VALUE Valore tipico Valeur typique
Density Densità Densité	g/cm ³	0,90
Heat Deflection Temperature HDT B (0.45MPa, unannealed) Temperatura di stabilità al calore HDT B Température de fléchissement sous charge HDT B	°C	60
Vicat Softening Temperature (A50) Temperatura di rammollimento Vicat Température de ramollissement Vicat	°C	120
Charpy impact strength, notched Charpy con intaglio Charpy avec entaille	KJ/m ² @23°C Type 1, Edgewise, Notch A)	6.5
	KJ/m ² @0°C Type 1, Edgewise, Notch A)	3.5
Flexural modulus Modulo elastico a flessione Module d'élasticité à flexion	MPa	1180
Tensile Modulus Modulo elastico trazione Module d'élasticité traction	MPa	800
Flame resistance Resistenza alla fiamma Résistivité à la flamme	Class	UL94-V2

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POLYPROPYLENE RANDOM

- Raw material for the moulding of the enclosures (muffle) of following product lines:

Materia prima per lo stampaggio degli involucri (muffole) dei seguenti accessori:

Matière première pour la fabrication des suivantes accessoires (moufle):

BRAVO, MINI BRAVO;

GEL BOX LINE (ISAAC, PASCAL, WATT, JOULE, KELVIN) with transparent casing/con involucri trasparenti / avec boîtes transparentes;

GEL COVER LINE (OHM, BAR) with transparent casing/con involucri trasparenti / avec boîtes transparentes;

GELGUM JOINT L,

GELGUM JOINT Y

HAPPY, with transparent casing/con involucri trasparenti / avec boîtes transparentes;

HAPPY JOINT,

MAGIC POWER JOINT, MAGIC POWER JOINT System Plus, MAGIC POWER JOINT System Fast RP;

MAGIC JOINT, MAGIC JOINT System Plus, MAGIC JOINT System Fast RP;

RUBBER JOINT;

RAYCAST, RAYCAST System Plus, RAYCAST System Fast RP;

READY CAST

WONDER JOINT, WONDER JOINT System Plus.

PROPERTIES – Proprietà - Propriétés	METHOD Metodo Méthode	UNIT Unità Unité	TYPICAL VALUE Valore tipico Valeur typique
• GENERAL – generali - général			
Density Densità Densité	ISO-1183-1	g/cm ³	0,90
• THERMAL – Termiche- Thermique			
Heat Deflection Temperature HDT B (0.45MPa, unannealed) Temperatura di stabilità al calore HDT B Température de fléchissement sous charge HDT B	ISO-75B-1, -2	°C	60
Vicat Softening Temperature (A50) Temperatura di rammollimento Vicat Température de ramollissement Vicat	ISO 306	°C	120
• MECHANICAL – Meccaniche - Mécanique			
Charpy impact strength, notched Charpy con intaglio Charpy avec entaille	ISO-179	KJ/m ² @23°C Type 1, Edgewise, Notch A)	6.5
		KJ/m ² @0°C Type 1, Edgewise, Notch A)	3.5
Flexural modulus Modulo elastico a flessione Module d'élasticité à flexion	ASTM D790	MPa	1180
Tensile Modulus Modulo elastico trazione Module d'élasticité traction	ISO 527-1, -2	MPa	800

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