Ray tech New

Little Joint L

IP68 and IP69K, gel pre-filled micro joint, space-saver complete with connectors and with minimal aesthetic impact.

Electrical performance:
CEI EN 50393
as applicable

Gel: UL 94-HB

Operating temperature 90°

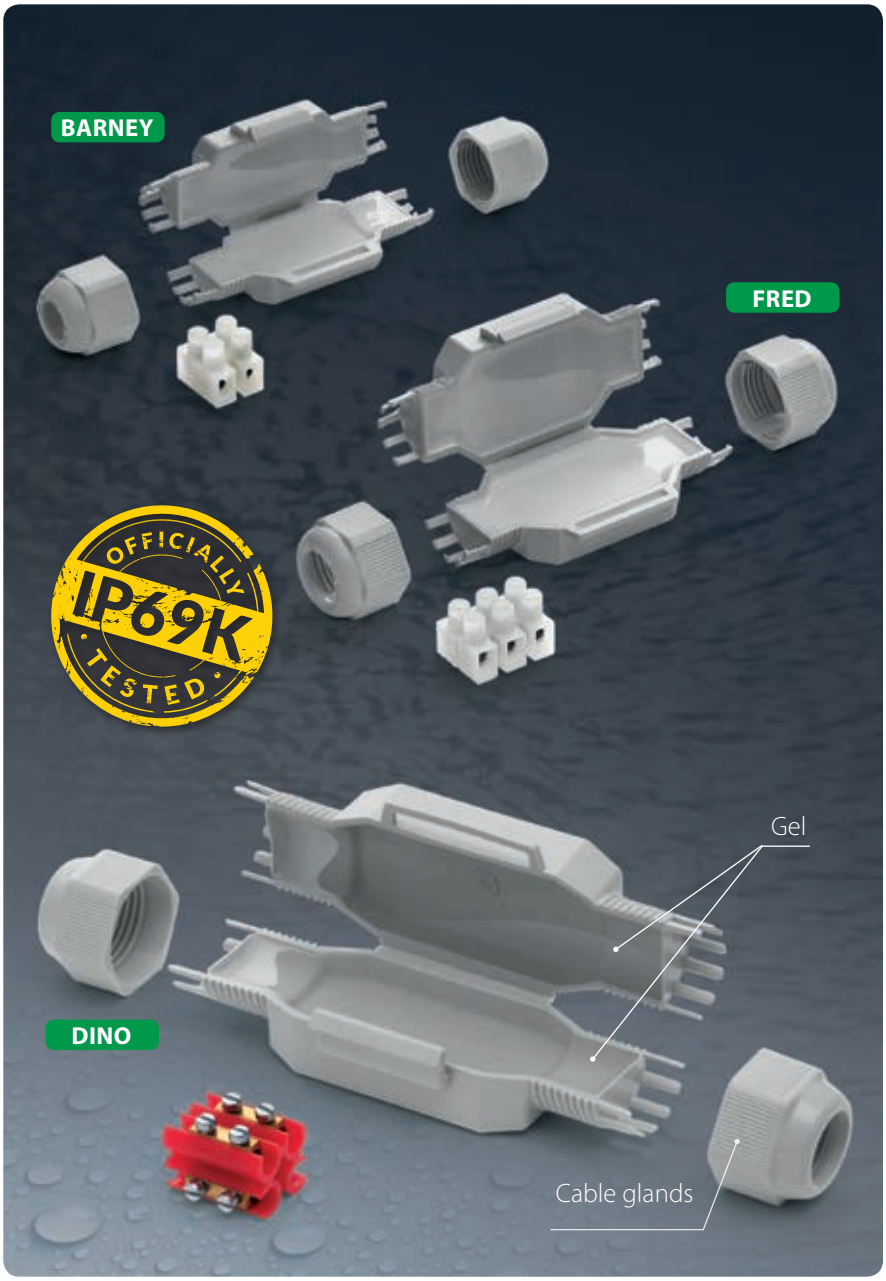
Installation temperature: -40°C / +50°C

Fully submersible

Can be used underground

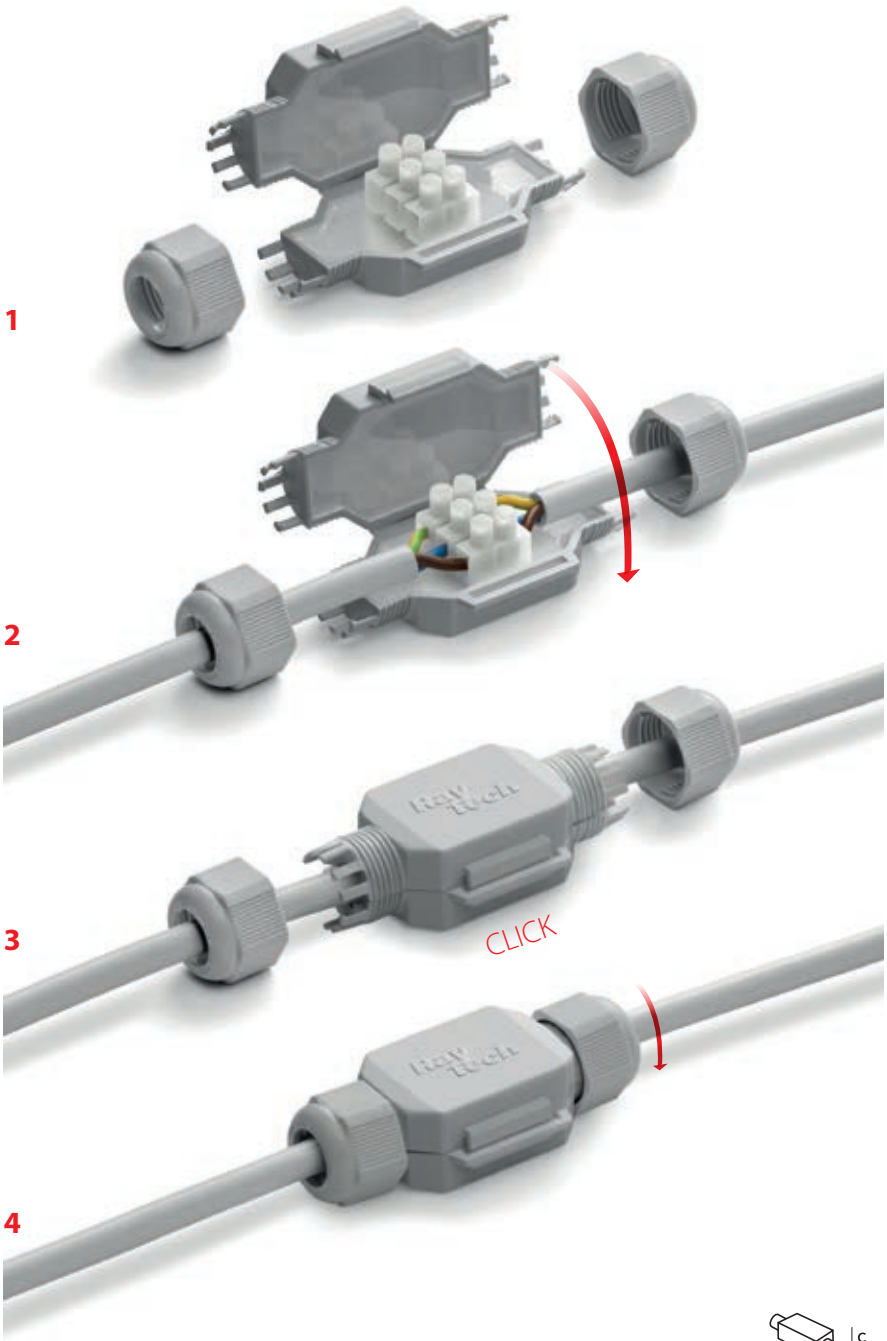
IP68 OFFICIALLY TESTED | IMQ

IP69K OFFICIALLY TESTED





- Equipped with cable glands to avoid accidental cable traction
- Complete with screw connectors
- Pre-filled with non-toxic, non-classified gel
- Very compact and ready to use
- Always re-enterable
- Halogen free & UV resistant



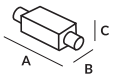




For use in traps, in lampholders for LED spotlights, especially in the presence of water and moisture, thanks to its very small size.



*Little*Joint *L*



Product	Colour	Connector	Cable formation max (N° x mm²)	Ø cables min - max (mm)	Pieces / Pack	A x B x C (mm)
Barney	●		2 x 2,5	6 - 10	1 / Blister	75 x 28 x 19
Barney - N	●				1 / Blister	
Barney MP	●				10 / Multipack	
Fred	●		3 x 2,5	8 - 13	1 / Blister	80 x 36 x 23
Fred - N	●				1 / Blister	
Fred MP	●				10 / Multipack	
Fred/4	●		3 x 4	8 - 13	1 / Blister	80 x 36 x 23
Fred/4 - N	●				1 / Blister	
Dino	●		4 x 4	10 - 16	1 / Blister	125 x 43 x 35
Dino - N	●				1 / Blister	

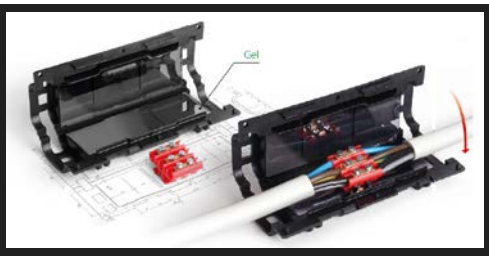


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G4J - gel for prefilled joints

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**:

HAPPY and **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 and **NANO FOR,**
BRAVO and **MINI BRAVO,**
LITTLE JOINT (BARNEY, FRED, DINO, BARNEY Y, FRED Y, BOB4) in all packing options,
READY BOX IP68, FOX BOX
SUPER CLIK, RAPID JOINT IP68, RAPIDINO IP68,
KING JOINT, RAPID JOINT, CLIK FIRE,
RAPID JOINT IP68 System Fast RP and **RAPID JOINT System Fast RP**,
GALACTIC MAMMUT SECURITY, GALACTIC NANO JOINT,
MCA UNIVERSAL IP68 and **MCA-Y.**

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
	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	25
	Dielectric constant / Permittivity	@ 100Hz @ 100kHz	-	2.95 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		IPX8, IP68 (Depending on the envelopes)

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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	
The product has unlimited shelf life, if stored and used according to the relevant instructions.	

Settimo Milanese, 10/2018



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TDS-RMP001

POLYPROPYLÈNE AUTO-EXTINGUIBLE - UL94 V2

- Raw material for the moulding of the following lines of enclosures:
- Materia prima per lo stampaggio dei seguenti accessori:
- *Matière première pour la fabrication des suivantes accessoires:*

- **Gel Box Line, (ISAAC, PASCAL, WATT, JOULE, KELVIN), HAPPY** with coloured casing ;
  Gel Box Line, (ISAAC, PASCAL, WATT, JOULE, KELVIN), HAPPY con involucri colorati ;
  Gel Box Line, (ISAAC, PASCAL, WATT, JOULE, KELVIN), HAPPY avec boites colorées ;
- **MAMMUT GEL COVER**
- **NANO JOINT, NANO MAM , NANO FOR**
- **LITTLE JOINT (BARNEY, FRED, DINO, BARNEY Y, FRED Y, BOB4)**
- **SUPER CLIK**
- **RAPID JOINT IP68, RAPIDINO IP68**
- **KING JOINT**
- **RAPID JOINT**
- **CLIK FIRE**
- **MAGIC JOINT FIRE**
- **RAPID JOINT L RIP68 e RAPID JOINT RP**
- **GALACTIC MAMMUT SECURITY**
- **GALACTIC NANO JOINT 4**
- **MCA Universal IP68**
- **MCA-Y**

PROPERTIES – *Proprietà - Proprietés*	METHOD *Metodo Méthode*	UNIT *Unità Unité*	TYPICAL VALUE *Valore tipico Valeur typique*
• **GENERAL – *generali - général***			
Density Densità *Densité*	ASTM D-792	g/ml	0.93
Melt volume rate Tasso volumetrico allo stato fuso *Débit volumique à l'état fondu* 230°C/2.16Kg	ISO-1133	cm^3/10 min	16.0
Linear modul shrinkage Ritiro lineare *Rétraite linéaire*	ASTM D-955	%	1.5
Transversal mould shrinkage Ritiro trasversale *Rétraite transversale*	ASTM D-955	%	1.5
Water adsorption (24h-23°C) Assorbimento acqua (24h-23°C) *Absorption de l'eau*	ASTM D-570	%	0.02
• **THERMAL – *Termiche- Thermique***			
Vicat B	ASTM D-1525	°C	80
HDT A	ASTM D-648	°C	55

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PROPERTIES – *Proprietà - Proprietés*	METHOD *Metodo Méthode*	UNIT *Unità Unité*	TYPICAL VALUE *Valore tipico Valeur typique*
• **MECHANICAL – Meccaniche - Mécanique**			
IZOD impact strength, notched IZOD con intaglio *IZOD avec entaille*	ISO-180/1A	KJ/m^2	9
IZOD impact strength, unnotched IZOD senza intaglio *IZOD sans entaille*	ISO-180/1U	KJ/m^2	NB
Tensile strength Carico a trazione *Charge à la traction*	ASTM D-638	MPa	20
Tensile elongation at break Allungamento a rottura *Allongement à rupture*	ASTM D-638	%	>100
Tensile modulus Modulo elastico trazione *Module d'élasticité traction*	ASTM D-638	MPa	1000
Flexural modulus Modulo elastico a flessione *Module d'élasticité à flexion*	ASTM D-790	MPa	-
Flexural strenght Carico massimo a flessione *Charge maxime à flexion*	ASTM D-790	MPa	-
• **ELECTRICAL – *elettriche - eléctrique***			
Comparative tracking index CTI *Indice d'alignement comparatif*	IEC 60112	V	-
Surface resistivity Resistività di superficie *Resistivité de surface*	-	Ohm	-
• **FLAME RESISTANCE - Resistenza alla fiamma – Resistivité à la flamme**			
Flame resistance (3.2 mm) Resistenza alla fiamma (3.2 mm) *Resistivité à la flamme (3.2 mm)*	UL94	-	V2
Flame resistance (1.6 mm) Resistenza alla fiamma (1.6 mm) *Resistivité à la flamme (1.6 mm)*	UL94	-	V2
Flame resistance (0.8 mm) Resistenza alla fiamma (0.8 mm) *Resistivité à la flamme (0.8 mm)*	UL94	-	-
GWFI	IEC 60695-2-12	°C/mm	-
GWIT	IEC 60695-2-13	°C/mm	-

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TECHNICAL DATA SHEET



GEL CONNECTION
CONNECTORS
WAGO series

The following products come complete with 450 V – 32 A splicing connectors not of our production:

NANO JOINT: WAGO series 221

HAPPY JOINT: WAGO series 221

GALACTIC NANO JOINT: WAGO series 222

For further details please refer to manufacturer data available on www.wago.com



GEL CONNECTION
CONNECTORS
MAMMUT - FORBOX

The following products come complete with connectors not of our production, according to the table.

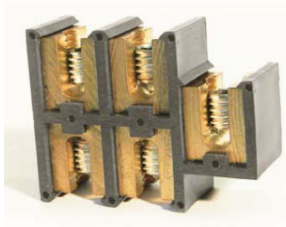
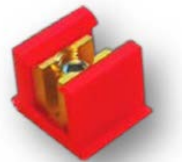
Products	Connector			
	Type	mm^2	V	A
PASCAL M2,5 NANO MAM 2,5 BARNEY FRED RAPIDINO IP68 L2 RAPIDINO IP68 L3	MAMMUT	2,5	400	24
KELVIN M4 NANO MAM 4 GALACTIC MAMMUT SECURITY FRED/4	MAMMUT	4	400	32
WATT + 1.5	FORBOX	1,5	450	17,5
WATT + 2.5 NANO FOR 2,5	FORBOX	2,5	450	24
KELVIN + 4 KELVIN 6 + 4 NANO FOR 4	FORBOX	4	450	32
KELVIN + 6 KELVIN 6 + 6	FORBOX	6	500	41

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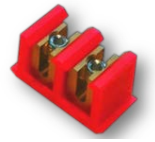
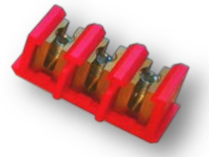
INSULATED CONNECTION BLOCK

Item	Shape	Description	Cable Section Range (mm^2)		Dimensions (mm)			Part of Jointing Kit	Selling Unit (SU)
			in line /straight	branch	L or Ø	W	H		
MORSETTIERA L16		**INSULATED CONNECTION BLOCK L 5x16** for in line connections up to 5 core Grey polypropylene separator, with pre-assembled brass connectors with steel screw	1,5 - 16	na	31	24	-	KING JOINT 0, L6 & L10 RAPID JOINT L1,5-IP68 & L6-IP68 WONDER JOINT SP L16 MAGIC P JOINT SP L16 MAGIC JOINT SP L16 RAYCAST SP L16	polybag of **10** PCS
MORSETTIERA L25		**INSULATED CONNECTION BLOCK L 5x25** for in line connections up to 5 core Grey polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 2 not included)	4 - 25	na	34	39	-	KING JOINT L25 RAPID JOINT L10-IP68 WONDER JOINT SP L25 MAGIC P JOINT SP L25 MAGIC JOINT SP L25 RAYCAST SP L25	polybag of **10** PCS
MORSETTIERA Y6		**INSULATED CONNECTION BLOCK Y 5x6** for branch connections up to 5 core Grey polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 2 not included)	1,5 - 6	1,5-4	36	13	28	KING JOINT Y6 WONDER JOINT SP Y6 MAGIC P JOINT SP Y6 MAGIC JOINT SP Y6 RAYCAST SP D6	polybag of **10** PCS
MORSETTIERA Y16		**INSULATED CONNECTION BLOCK Y 5x16** for branch connections up to 5 core Grey polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 6 not included)	4 - 16	1,5-4	45	16	36	KING JOINT Y16 WONDER JOINT SP Y16 MAGIC P JOINT SP Y16 MAGIC JOINT SP Y16 RAYCAST SP D16	polybag of **10** PCS
MORSETTIERA T		**INSULATED CONNECTION BLOCK Y 4x35** for branch connections up to 4 core Black polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 6 not included)	10 - 35	1,5-6	50	24	36	KING JOINT Y35 MAGIC P JOINT SP T35 MAGIC JOINT SP T35 RAYCAST SP T 35 SUPER CLIK 3	polybag of **5** PCS
MORSETTIERA B1		**INSULATED CONNECTION BLOCK LY 1x6** for branch or in line connections Red polypropylene separator, with pre-assembled brass connector with allen screw (Allen key size 2 not included)	1 x 1,5 - 6	1 x 1,5 - 6	17	14	15	BRAVO 1-6 MINIBRAVO 1 BARNEY Y RAPIDINO IP68 Y1	polybag of **30** PCS

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Item	Shape	Description	Cable Section Range (mm^2)		Dimensions (mm)			Part of Jointing Kit	Selling Unit (SU)
			in line /straight	branch	L or Ø	W	H		
MORSETTIERA B2		**INSULATED CONNECTION BLOCK LY 2x6** for branch or in line connections Red polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 2 not included)	2 x 1,5 - 6	2 x 1,5 - 6	29	14	15	MINIBRAVO 2	polybag of **30** PCS
MORSETTIERA B3		**INSULATED CONNECTION BLOCK LY 3x6** for branch or in line connections Red polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 2 not included)	3 x 1,5 - 6	3 x 1,5 - 6	40	22	15	BRAVO 3-6 MINIBRAVO 3 FRED Y RAPIDINO IP68 Y3 BOB4	polybag of **30** PCS
MORSETTIERA 3-6		**INSULATED CONNECTION BLOCK LY 3x6** for branch or in line connections up to 3 cores Red polypropylene separator, with pre-assembled brass connectors with steel screw	Straight: 1,5 - 6	Main: 4 Branch: 2,5	20	25,5	18	SUPER CLIK 0	polybag of **10** PCS
MORSETTIERA 4-6		**INSULATED CONNECTION BLOCK LY 4x6** for branch or in line connections up to 4 cores Red polypropylene separator, with pre-assembled brass connectors with steel screw.	Straight: 1,5 - 6	Main: 4 Branch: 2,5	19	25,5	17,2	DINO RAPIDINO IP68 L4	-

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INSULATED CONNECTION BLOCK

Item	Shape	Description	Cable Section Range (mm^2)		Dimensions (mm)			Part of Jointing Kit	Selling Unit (SU)
			in line /straight	branch	L or Ø	W	H		
MORSETTIERA 5-6		**INSULATED CONNECTION BLOCK LY 5x6** for branch or in line connections up to 5 cores Red polypropylene separator, with pre-assembled brass connectors with steel screw	Straight: 1,5 - 6	Main: 4 Branch: 2,5	31	25,5	18	SUPER CLIK 1	polybag of **10** PCS
MORSETTIERA 5-16		**INSULATED CONNECTION BLOCK LY 5x16 mm^2** for branch or in line connections up to 5 cores Red polypropylene separator, with pre-assembled brass connectors with steel screw	Straight: 4 - 16	Main: 10 Branch: 6	38,5	28,5	23	SUPER CLIK 2	polybag of **10** PCS
MORSETTIERA 3x6		**INSULATED CONNECTION BLOCK LY 3x6 mm^2** for branch or in line connections Grey polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 2 not included)	3 x 1,5 - 6	3 x 1,5 - 6	37	14	22	READY BOX IP68 90	
MORSETTIERA 5x6		**INSULATED CONNECTION BLOCK LY 5x6 mm^2** for branch or in line connections Grey polypropylene separator, with pre-assembled brass connectors with allen screw (Allen key size 2 not included)	5 x 1,5 - 6	5 x 1,5 - 6	59	14	22	READY BOX IP68 120	-

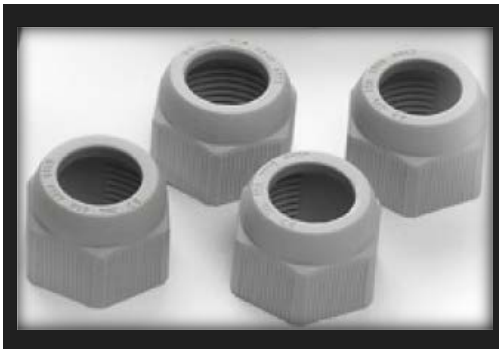
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GEL CONNECTION IP68

CABLE GLANDS METRIC PITCH

The cable glands in **LITTLE JOINT (BARNEY, FRED, DINO, BARNEY Y, FRED Y, BOB4)**, **MINIRAPID (RAPIDINO IP68)** and **READY BOX IP68**, **FOX BOX** accessories are made of a self-extinguishing compound, with high resistance to UV radiation and to ageing, also in the most severe conditions

Item	Pitch	Ø cable range		Ø tubes	Part of the kit IP68
	METRICO	Min (mm)	Max (mm)		
DADO M16 (*CABLE GLANDS M16*)	M16X1.5	6	10	-	BARNEY, BARNEY Y, RAPIDINO IP68 L2, RAPIDINO IP68 Y1
DADO M20 (*CABLE GLANDS M20*)	M20X1.5	8	13	-	FRED, FRED Y, BOB4, RAPIDINO IP68 L3, RAPIDINO IP68 Y3
DADO M25 (*CABLE GLANDS M25*)	M25X1.5	10	16	-	DINO, RAPIDINO IP68 L4
BULLONE (hole Ø 21) (*CABLE GLANDS hole* Ø 21)	M25X1.5	6*	18	16*, 20	READY BOX IP68 120, READY BOX IP68 90, FOX BOX
		*for cable up to 13 mm, use the adaptors included in the kit		* use the adaptors included in the kit	

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Protection degree	IEC 60529	-	IP 68
• **MECHANICAL**			
Tensile strength	ASTM D-638	MPa	20
Tensile elongation at break	ASTM D-638	%	>100
Tensile modulus	ASTM D-638	MPa	1000
RESISTENZA ALLA FIAMMA			
Flame resistance (3.2 mm)	UL94	-	V2
Flame resistance (1.6 mm)	UL94	-	V2
Flame resistance (0.8 mm)	UL94	-	V2

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