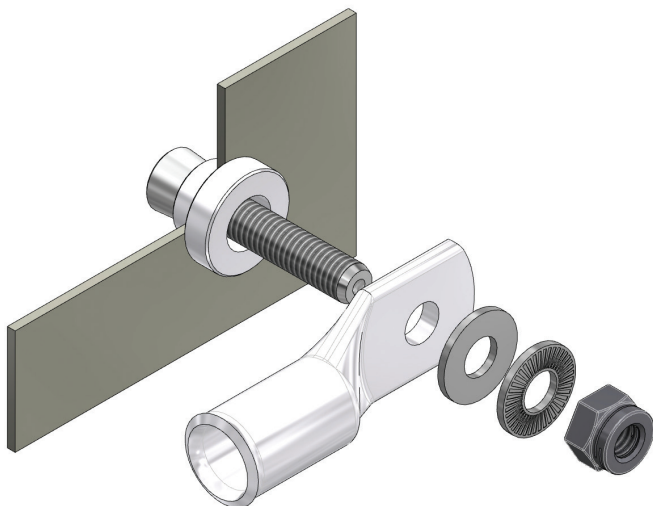


STANLEY

DUBUIS

► FOR EARTH GROUNDING,
THINK OF DUBUIS' EARTH BOND !



► EARTH BONDING SYSTEM
🇬🇧 english version

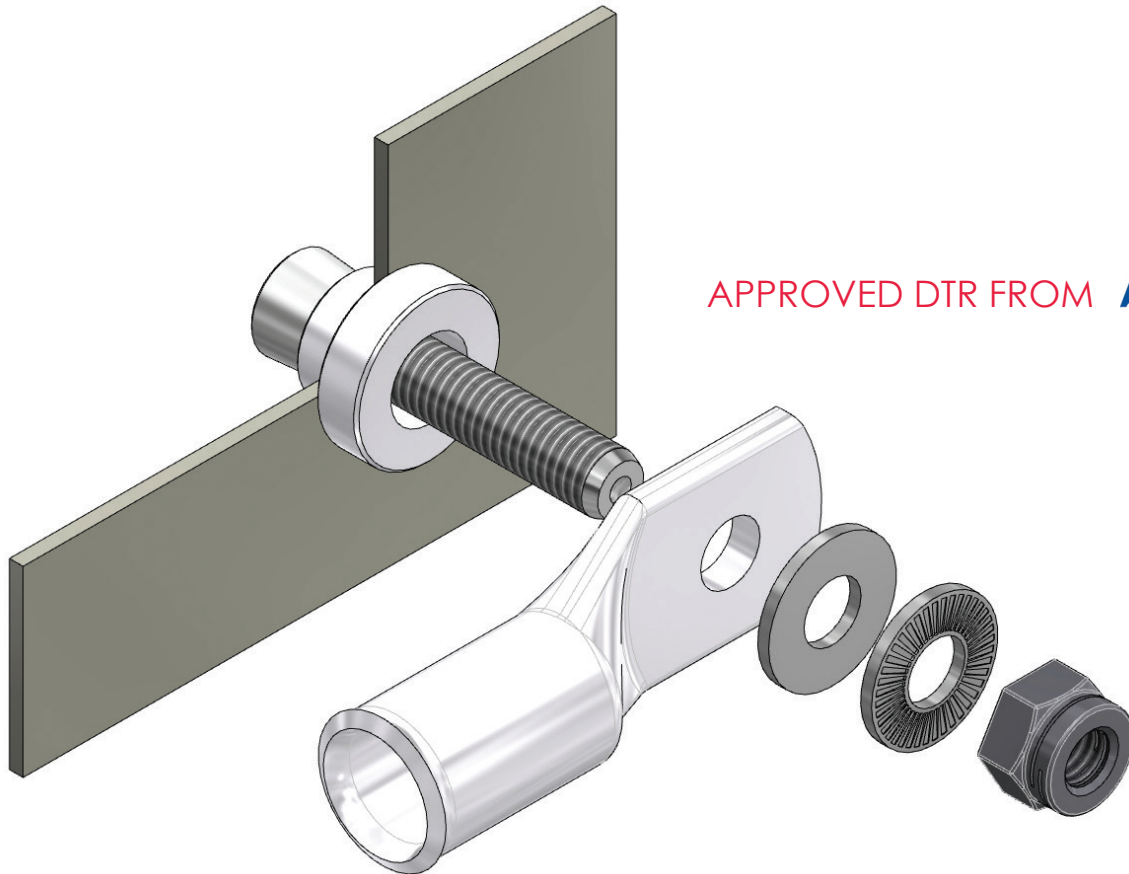
COST REDUCTION
EASY TO USE
RELIABILITY
PERFORMANCE

THE EARTH BOND

► SUMMARY



A REAL ADVANTAGE !	2 - 3
PRINCIPLE & PROCESS OF THE DUBUIS EARTH BOND	4
10 REASONS TO GIVE UP WELDING FOR EARTH BOND	5
INSTALLATION STEPS	6
TOOLING FOR SETTING EARTH BOND	7
SPECIAL DRILLS & DRILLING LUBRIFICATION	8
TORQUE WRENCHES	9
HOW TO DEFINE YOUR EARTH BOND AND TOOLING ?	10 - 11
TESTS, PERFORMANCES, STANDARDS & DIMENSIONS OF THREADED EARTH BOND	
USE WITH STEEL & STAINLESS STEEL PLATE	12 - 13
USE WITH ALUMINIUM PLATE	14 - 15
TESTS, PERFORMANCES, STANDARDS & DIMENSIONS OF EARTH GROUNDING BOSS	
USE WITH STEEL & STAINLESS STEEL PLATE	16
USE WITH ALUMINIUM PLATE	17



APPROVED DTR FROM **ALSTOM**

COST REDUCTION EASY TO USE RELIABILITY PERFORMANCE

The Dubuis Earth Bonding system is a revolutionary method for setting a secure fixing with a reliable electrical connection. The earth bond offers an equipotential link between a structure and equipment, and allows the passage of high intensity current in case of short-circuit.

► APPLICATIONS



ROLLING STOCK

BOMBARDIER **ALSTOM**

ELECTRICAL CONNECTION TO THE RAIL



AUTOMOTIVE



OFF SHORE (CATHODIC PROTECTION)



MILITARY VEHICLES



SHIP CONSTRUCTION



► BENEFITS

COST REDUCTION

Quick and easy to use, time saving & limited tooling investment

TIME SAVING

Drill, Expend & Connect, 3 minutes only to connect

UNIVERSAL APPLICATION

Irregular, curves surfaces, install into a blind hole, or restricted areas, partitions, electrical cupboard, air-conditioning, brakes system, various components of the chassis and frame

EASY TO USE

Quick & easy process for repeatable and automatable connections

TOOLS

Manual, light, only one person operation

SECURITY

Limited error on connection, no heat, no sparks or fire

NO PLATE PREPARATION OR CLEANING

Requires no welding, impacting, cleaning or surface preparation

RELIABILITY & PERFORMANCE

Constant & long-lasting connection providing low electrical resistance

TRACEABILITY

Each earth bond is marked with a batch number

INTENSIVE TESTS

Mechanical, vibration, electrical, short circuit, destruction, corrosion, rotation tests.

APPROVED & CUSTOMERS REFERENCES

Alstom, SNCF, Bombardier, Siemens, Aston Martin and other key account customers

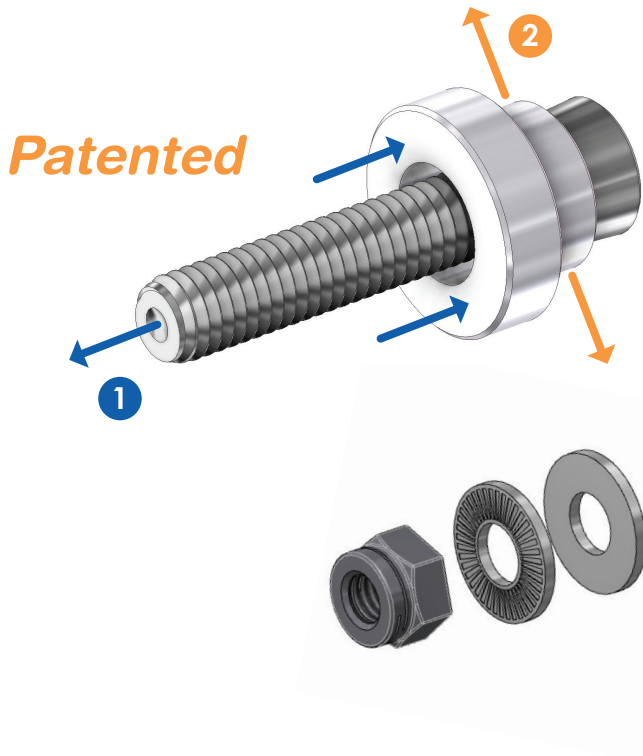
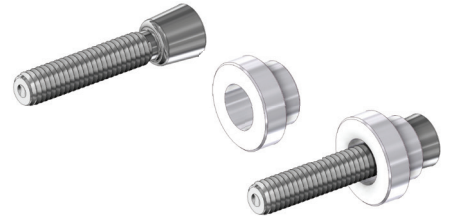
ENGINEERING

Specific development with customer partnership (on-measure project)

► PRINCIPLE

Dubuis earth bond comprises two pre-assembled components :

- 1. A conical dowel having a thread
- 2. A flanged bush with an outside cylindrical diameter



A tensile load applied by calibrated PMT pulling tool allows the dowel to be pulled through the shouldered bushing, while remaining fixed in the pre-drilled hole of the structure.

As the conical dowel passes through the bushing, the bushing expands within the cavity making electrical contact within the metal structure and establishing a permanent electrical connection. Once the bond is in place the electrician has cylindrical conductive platform to make contact with the lug and a threaded stud to secure his connection.

We recommend using Stainless steel 316L fastening approved and used by the Railway industry for all applications. It is composed of :

- 1. Stanal self locking nut
- 2. Ridged contact washer
- 3. Flat washer

► PROCESS : 3 STEPS



10 REASONS TO GIVE UP WELDING FOR EARTH BOND



WELDING



DUBUIS EARTH BOND

SECURITY	<ul style="list-style-type: none"> ✗ Dangerous, gas handling, fire, spark 	<ul style="list-style-type: none"> ✓ No danger
TIME FOR PROCESS	<ul style="list-style-type: none"> ✗ Average of 15 minutes per welding 	<ul style="list-style-type: none"> ✓ Fast, simple, Earth bond installed on 3 minutes only (drilling included)
SURFACE PREPARATION	<ul style="list-style-type: none"> ✗ Important preparation, average of 8 minutes. Tooling setting, sanding, cleaning and welding. 	<ul style="list-style-type: none"> ✓ No preparation required
COST REDUCTION & TIME SAVING	<ul style="list-style-type: none"> ✗ Long process, hazardous depending on the operator 	<ul style="list-style-type: none"> ✓ Quick and easy to use, intensive setting, very low investment on tooling
RELIABILITY & LIFE EXPECTANCY	<ul style="list-style-type: none"> ✗ Limited reliability depending on the operator 	<ul style="list-style-type: none"> ✓ Life connection offering very low electrical resistance
TOOLING	<ul style="list-style-type: none"> ✗ Heavy, large and dangerous 	<ul style="list-style-type: none"> ✓ Light handling tool
OPERATOR SKILL	<ul style="list-style-type: none"> ✗ Welder training : M1 - M2 - M3 - M4 - M5 - M6 - M7 	<ul style="list-style-type: none"> ✓ No training
TRACEABILITY AND QUALITY	<ul style="list-style-type: none"> ✗ No 	<ul style="list-style-type: none"> ✓ Each earth bond has a batch number marked on conical bush
TESTING	<ul style="list-style-type: none"> ✗ No 	<ul style="list-style-type: none"> ✓ Mechanical, vibration, electrical, short circuit destruction, shock sealing, corrosion...
APPROVALS	<ul style="list-style-type: none"> ✗ No 	<ul style="list-style-type: none"> ✓

THE EARTH BOND INSTALLATION STEPS



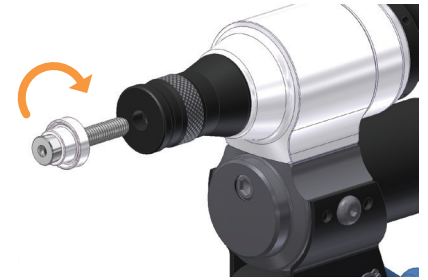
1

Drill a hole in the structure to the determined diameter of the earth bond



2

Push the trigger to fully discharge hydraulic pressure & retract the piston.



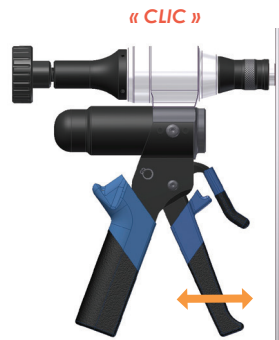
3

Screw the bond into the nose of the hydraulic setting tool.



4

Insert the bond into the hole so that the flange is flush to the plate.
MAKE SURE THE TOOL IS PERPENDICULAR TO THE STRUCTURE.



5

Pump the handle of the tool until an audible click is heard (calibrated pressure force).



6

After the click, push the trigger to discharge hydraulic pressure.



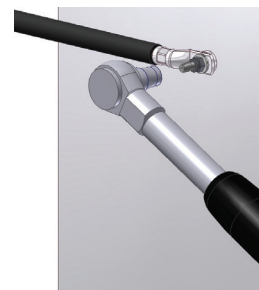
7

Release the tool from the stud, turn off the button at the back of the tool.



8

Attach the connection, flat washer, conical washer and screw the nut.



9

ATTENTION : Tighten to required torque value noted on the earth bond box, with torque wrench.

THE EARTH BOND

TOOLING FOR SETTING EARTH BOND

► A setting tool calibrated and adapted for each earth bond thread. Delivered in its plastic case.



PMT C6

THREAD	M6
PULLING FORCE	10 kN
STROKE	8 mm
WEIGHT	1,280 kg
DIMENSIONS (L x l x H en mm)	185 x 205 x 45
ENERGY	Hydraulic manual
PART NUMBER	MTPM060A1000



PMT8

THREAD	M8
PULLING FORCE	18 kN
STROKE	8 mm
WEIGHT	1,280 kg
DIMENSIONS (L x l x H en mm)	185 x 205 x 45
ENERGY	Hydraulic manual
PART NUMBER	MTPM080A1000



PMT10

THREAD	M10
PULLING FORCE	25 kN
STROKE	8 mm
WEIGHT	1,280 kg
DIMENSIONS (L x l x H en mm)	185 x 205 x 45
ENERGY	Hydraulic manual
PART NUMBER	MTPM100A1000



PMA10

THREAD	M6 - M8 - M10
PULLING FORCE	10 > 25 kN
STROKE	8 mm
WEIGHT	3,700 kg
DIMENSIONS (L x l x H en mm)	270 x 140 x 320
ENERGY	pneumatic
PART NUMBER	65909

CONTROL GAUGE



PART NUMBER	80928 (in its case)
WEIGHT	4,700 kg
DIMENSIONS (L x l x H en mm)	380 x 300 x 80
TOOL CONTROL	PMT C6 - PMT8 - PMT10 - PMA10

► SPECIAL REAMER DRILLS HSS 5 % COBALT

The quality of boring is very important to ensure the electrical connection. The drilling tolerances have to be respected (-0/+0,2).

DUBUIS offers a range of reamer drills, adapted to the diameter of each earth bond, to use with handle drilling machines.



Two methods of drilling :

1. Boring in the middle of the material just before the setting of earth bond with the **long step drill**
2. Drilling of a core removing hole with a diameter 1 mm under the nominal diameter, boring of the hole by the operator at the nominal diameter just before the setting of earth bond with the **short step drill**

SHORT DRILLS			
	PART NUMBER	DRILLING Ø	DRILLING LENGHT
	OFE0850016	8,5 mm	16 mm
	OFE1050020	10,5 mm	20 mm
	OFE1150018	11,5 mm	18 mm
	OFE1350019	13,5 mm	19 mm
	OFE1500018	15 mm	18 mm
	OFE1900022	19 mm	22 mm

LONG DRILLS			
	PART NUMBER	DRILLING Ø	DRILLING LENGHT
	OFE0850032	8,5 mm	32 mm
	OFE1050041	10,5 mm	41 mm
	OFE1150044	11,5 mm	44 mm
	OFE1350037	13,5 mm	37 mm
	OFE1500042	15 mm	42 mm
	OFE1900051	19 mm	51 mm

► DRILLING LUBRICATION :

We recommend the use of a drilling lubrication for electrical neutrality. The use of these oils does not disturb the connection, also in case of oil residue around the hole.



Drilling in steel or stainless steel use **Ferrofluid** lubrication

PN : 80300



Drilling in aluminum use **Alufluid** lubrication

PN : 80298

- Reduces the wear of the drill
- Increases the lifetime of the drill
- Avoids the sticking of cuttings on the drill
- Electrical neutrality

To secure the long life of an electrical contact, a calibrated drilling and a correctly expanded earth bond are necessary. It is also essential to ensure that the nut which holds the terminal onto the connection element is tightened to the right torque value.






- Adjustable torque value
- Equipped with a vernier to improve accuracy of setting : readable and precise to eliminate risk of error
- The vernier remains locked in the set position, to prevent accidental misadjustment
- A touch sensitive and audible release
- Reset automatically as soon as the force is released and immediately ready for next operation
- Fitted with a reversible ratchet to unscrew the nut.
- Torque wrench are numbered and delivered with a test certificate
- Delivered in a plastic protection storage tube



TECHNICAL SPECIFICATION

STANDARD	ISO 6789
ACCURACY	+/- 4% of the displayed value
OPERATION RANGE	From 20% to 100% of the maximum capacity of the tool

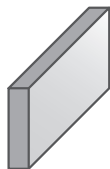
TORQUE WRENCHES

		
PART NUMBER	80997	80967
CAPACITIES (Nm)	5 - 25	20 - 100
Ø	1/4"	1/2"
EARTH BOND THREAD	M6 - M8	M10
SOCKETS PN.	(M6) OFACR10 	OFACS16H 
	(M8) OFACR13 	

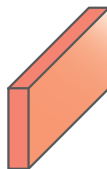


1 DEFINE THE PLATE RAW MATERIAL WHERE WILL BE SET THE EARTH BOND

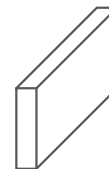
▶ Steel & Stainless steel



▶ Aluminium

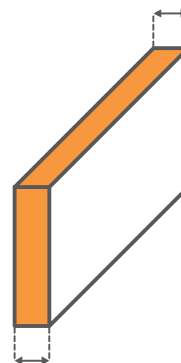


▶ Others

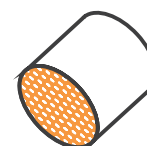


2 IDENTIFY PLATE THICKNESS IN MILLIMETERS :

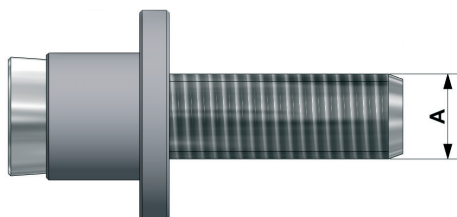
- 1,5 – 4 mm
- 2 – 4 mm
- > 4 mm
- OTHERS



3 DETERMINE THE CABLE SECTION TO CONNECT



4 IDENTIFY THE THREAD TYPE : M6 – M8 – M10 OR OTHERS.



HOW TO DEFINE YOUR EARTH BOND & TOOLING ?

- 5** CHOOSE BETWEEN MALE THREADED EARTH BOND RANGE & FEMALE EARTH GROUNDING BOSS RANGE, RESPECTING PLATE RAW MATERIAL :

♂ EARTH BOND ▶

Universal application
Choose the length of threaded conical dowel.



♀ GROUNDING BOSS ▶

Universal application
Dedicated to narrow spaces.



- 6** RESPECT DRILLING TOLERANCES USING SPECIAL DRILLS AND DRILLING LUBRICATION



- 7** CHOOSE A SETTING TOOL CALIBRATED AND ADAPTED FOR EACH EARTH BOND THREAD



M6

▶ **PMTC6 TOOL**



M8

▶ **PMT8 TOOL**



M10

▶ **PMT10 TOOL**

MANUAL TOOL Small serie










M6 - M8 - M10

▶ **PMA10 TOOL**

INTENSIVE USE
Huge serie









► USE WITH STEEL & STAINLESS STEEL PLATE

THREAD	M6	M6	M6	M6	M6	M6	
PLATE THICKNESS	1,5 - 4 mm	1,5 - 4 mm	1,5 - 4 mm	1,5 - 4 mm	> 4	> 4	
DRILLING DIAMETER (mm)	11,5 / 11,7	11,5 / 11,7	11,5 / 11,7	11,5 / 11,7	8,5 / 8,7	8,5 / 8,7	
PACKAGING (20 PCS/BOX)							
EARTH BOND PN.	80974	80923	77907	77905	80975	80925	
ALSTOM APPROVAL №	DTR0000133407	DTR0000001260	DTR0000133407	DTR0000001260	DTR0000133656	DTR0000001261	
BOMBARDIER APPROVAL №	NA	3EER100005-781	NA	NA	3EER400005-6424	NA	
LONG DRILL	OFE1150044	OFE1150044	OFE1150044	OFE1150044	OFE0850032	OFE0850032	
SHORT DRILL	OFE1150018	OFE1150018	OFE1150018	OFE1150018	OFE0850016	OFE0850016	
SETTING TOOL	PMT6 / PMA10						
A4-80 SS FASTENING	81920 						
MAXIMUM TORQUE VALUE	10 N.m						
DIMENSIONS (mm)	A	M6	M6	M6	M6	M6	M6
	B	16	16	16	16	16	16
	C / C'	10,5 (5,5)*	10,5 (5,5)*	10,5 (5,5)*	10,5 (5,5)*	14 (11)*	15 (12)*
	D	4,5	4,5	4,5	4,5	3,5	3,5
	E	4,5	4,5	4,5	4,5	11	11
	F	11,5	11,5	11,5	11,5	8,5	8,5
	G / G'	13 (18)*	21 (26)*	13 (18)*	21 (26)*	17 (20)*	24 (27)*
WEIGHT		14,5 gr	16,5 g	14,5 g	16,5 g	15 g	16 g
BUSH RAW MATERIAL	Tined copper						
ELECTRICAL PERFORMANCE :							
ELECTRICAL RESISTANCE LUG / PLATE - NF F00-363	Steel	25 µΩ	25 µΩ	25 µΩ	25 µΩ	25 µΩ	25 µΩ
	SS	120 µΩ	120 µΩ	120 µΩ	120 µΩ	75 µΩ	75 µΩ
SHORT CIRCUIT RESISTANCE	Steel	3 × 15 kA	3 × 15 kA	3 × 15 kA	3 × 15 kA	3 × 10 kA	3 × 10 kA
	SS	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA
ELECTRICAL CONTACT SURFACE EARTH BOND / NF F00-363		160 sqmm	160 sqmm	160 sqmm	160 sqmm	290 sqmm	290 sqmm
CORROSION RESISTANCE 500 H IN SALT MIST NF EN 3373	Steel	30 µΩ	30 µΩ	30 µΩ	30 µΩ	-	-
	SS	150 µΩ	150 µΩ	150 µΩ	150 µΩ	-	-
MECHANICAL PERFORMANCE :							
TENSILE LOAD TEST NF F00-363	2 mm	400 daN	400 daN	400 daN	400 daN	-	500 daN
	4 mm	-	-	-	-	500 daN	500 daN
SHEARING	Steel	1,5 mm	100 daN	100 daN	100 daN	100 daN	-
		4 mm	180 daN	180 daN	180 daN	180 daN	200 daN
	SS	1,5 mm	130 daN	130 daN	130 daN	130 daN	200 daN
		4 mm	180 daN	180 daN	180 daN	180 daN	200 daN
VIBRATION BS EN 61373		1g - 5 à 150 Hz 5H/axis	1g - 5 à 150 Hz 5H/axis	1g - 5 à 150 Hz 5H/axis	1g - 5 à 150 Hz 5H/axis	4g - 10 à 500 Hz 90 min/axis	-
SHOCKS BS EN 61373		5g - 30 ms 3 shocks/axis	5g - 30 ms 3 shocks/axis	5g - 30 ms 3 shocks/axis	5g - 30 ms 3 shocks/axis	300g - 3 ms 3 shocks/axis	-
SEALING	IP65						
SCALE TEMPERATURE USAGE	-50°C / +80°C						

* Dimension after crimping








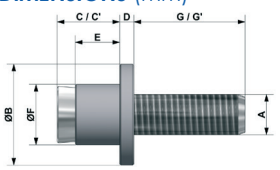
TESTS, PERFORMANCES, STANDARDS & DIMENSIONS

► USE WITH STEEL & STAINLESS STEEL PLATE

THREAD	M8	M8	M10	M10	M10	M10	
PLATE THICKNESS	1,5 - 4 mm	> 4	2 - 4 mm	> 4	> 4	> 4	
DRILLING DIAMETER (mm)	15 - 15,2	11,5 / 11,7	19 / 19,2	13,5 / 13,7	13,5 / 13,7	13,5 / 13,7	
PACKAGING (20 PCS/BOX)							
EARTH BOND PN.	81929	81928	80924	80926	81952	80945	
ALSTOM APPROVAL №	NA	DTR0000038412	DTR0000000083	DTR0000000084	DTR0000061617	DTR00211632A	
BOMBARDIER APPROVAL №	NA	NA	3EER100005-783	3EER100005-784	NA	NA	
LONG DRILL	OFE1500042	OFE1150044	OFE1900051	OFE1350037	OFE1350037	OFE1350037	
SHORT DRILL	OFE1500018	OFE1150018	OFE1900022	OFE1350019	OFE1350019	OFE1350019	
SETTING TOOL	PMT8 / PMA10			PMT10 / PMA10			
A4-80 SS FASTENING	81922		81921				
MAXIMUM TORQUE VALUE	25 N.m			50 N.m			
DIMENSIONS (mm)	A	M8	M8	M10	M10	M10	M6
	B	20	20	25	25	25	25
	C C'	8 (3)*	15 (12)*	12 (5)*	14 (11)*	16 (13)*	21,5 (18,5)*
	D	4,5	3,5	5,5	3,5	3,5	3,5
	E	4,5	11	4,5	11	13	17
	F	15	11,5	19	13,5	13,5	13,5
	G G'	16 (21)*	19 (22)*	25 (32)*	28 (31)*	28 (31)*	21 (24)*
WEIGHT		29 g	26 g	51 g	42 g	45 g	46 g
BUSH RAW MATERIAL	Tined copper					Stainless steel	
ELECTRICAL PERFORMANCE :							
ELECTRICAL RESISTANCE LUG / PLATE - NF F00-363	Steel	20 µΩ	20 µΩ	20 µΩ	20 µΩ	20 µΩ	90 µΩ
	SS	70 µΩ	70 µΩ	70 µΩ	60 µΩ	60 µΩ	-
SHORT CIRCUIT RESISTANCE	Steel	3 × 15 kA	3 × 20 kA	-	-	-	-
	SS	3 × 10 kA	3 × 15 kA	3 × 15 kA	3 × 20 kA	3 × 20 kA	-
ELECTRICAL CONTACT SURFACE EARTH BOND / NF F00-363		210 sqmm	400 sqmm	270 sqmm	465 sqmm	550 sqmm	720 sqmm
CORROSION RESISTANCE 500 H IN SALT MIST NF EN 3373	Steel	-	-	25 µΩ	-	-	-
	SS	-	-	90 µΩ	-	-	-
MECHANICAL PERFORMANCE :							
TENSILE LOAD TEST NF F00-363	2 mm	300 daN	-	500 daN	-	-	-
	4 mm	-	600 daN	-	800 daN	-	-
SHEARING	Steel	2 mm	-	190 daN	-	-	-
		4 mm	-	340 daN	600 daN	-	-
	SS	2 mm	-	250 daN	-	-	-
		4 mm	-	340 daN	600 daN	-	-
VIBRATION BS EN 61373		-	-	4g - 10 à 500 Hz 90 min/axis	4g - 10 à 500 Hz 90 min/axis	-	-
SHOCKS BS EN 61373		-	-	300g - 3 ms 3 shocks/axis	300g - 3 ms 3 shocks/axis	-	-
SEALING		IP65					
SCALE TEMPERATURE USAGE		-50°C / +80°C					

* Dimension after crimping

► USE WITH ALUMINIUM PLATE







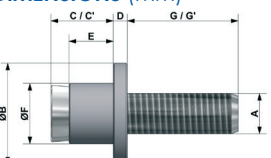
THREAD	M6	M6	M6	M6	M6	M6		
PLATE THICKNESS	1,5 - 4 mm	1,5 - 4 mm	1,5 - 4 mm	1,5 - 4 mm	> 4	> 4		
DRILLING DIAMETER (mm)	11,5 / 11,7	11,5 / 11,7	11,5 / 11,7	11,5 / 11,7	10,5 / 10,7	10,5 / 11,7		
PACKAGING (20 PCS/BOX)								
EARTH BOND PN.	80976	80958	77906	77904	80977	80960		
ALSTOM APPROVAL №	DTR0000127255	DTR0000000074	DTR0000127255	DTR0000000074	DTR0000133695	DTR0000001263		
BOMBARDIER APPROVAL №	3EER4000057272	3EER300001-0318	NA	NA	3EER400005-4645	3EGK202252		
LONG DRILL	OFE1150044	OFE1150044	OFE1150044	OFE1150044	OFE1050041	OFE1050041		
SHORT DRILL	OFE1150018	OFE1150018	OFE1150018	OFE1150018	OFE1050020	OFE1050020		
SETTING TOOL	PMT6 / PMA10							
A4-80 SS FASTENING	81920 							
MAXIMUM TORQUE VALUE	10 N.m							
DIMENSIONS (mm)		A	B	C C'	D	E	F	G G'
	M6	M6	M6	M6	M6	M6	M6	M6
	16	16	16	16	16	16	16	16
	10,5 (5,5)*	10,5 (5,5)*	10,5 (5,5)*	10,5 (5,5)*	10,5 (5,5)*	14,5 (11,5)*	14,5 (11,5)*	14,5 (11,5)*
	4,5	4,5	4,5	4,5	4,5	3,5	3,5	3,5
	4,5	4,5	4,5	4,5	4,5	11	11	11
	11,5	11,5	11,5	11,5	11,5	10,5	10,5	10,5
	13 (18)*	21 (26)*	13 (18)*	21 (26)*	13 (18)*	21 (26)*	16 (19)*	24 (27)*
WEIGHT	10 g	12 g	10 g	12 g	13 g	15 g		
BUSH RAW MATERIAL	Nickel plated aluminium							
ELECTRICAL PERFORMANCE :								
ELECTRICAL RESISTANCE LUG / PLATE - NF F00-363	60 µΩ	60 µΩ	60 µΩ	60 µΩ	60 µΩ	60 µΩ	60 µΩ	
SHORT CIRCUIT RESISTANCE	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA	3 × 10 kA	
ELECTRICAL CONTACT SURFACE EARTH BOND / SURFACE NF F00-363	160 sqmm	160 sqmm	160 sqmm	160 sqmm	160 sqmm	360 sqmm	360 sqmm	
CORROSION RESISTANCE 500 H IN SALT MIST NF EN 3373	90 µΩ	90 µΩ	90 µΩ	90 µΩ	-	-	-	
MECHANICAL PERFORMANCE :								
TENSILE LOAD TEST NF F00-363	2 mm 4 mm	250 daN -	250 daN -	250 daN -	250 daN -	- 300 daN	300 daN	
SHEARING	1,5 mm 2 mm 4 mm	35 daN - 200 daN	35 daN - 200 daN	35 daN - 200 daN	35 daN - 200 daN	- - 210 daN	- - 210 daN	
VIBRATION BS EN 61373		1 g - 5 à 150 Hz 5 H/axis	1 g - 5 à 150 Hz 5 H/axis	1 g - 5 à 150 Hz 5 H/axis	1 g - 5 à 150 Hz 5 H/axis	-	4 g - 10 à 500 Hz 90 min/axis	
SHOCKS BS EN 61373		5 g - 30 ms 3 shocks/axis	5 g - 30 ms 3 shocks/axis	5 g - 30 ms 3 shocks/axis	5 g - 30 ms 3 shocks/axis	-	300 g - 3 ms 3 shocks/axis	
SEALING	IP65							
SCALE TEMPERATURE USAGE	-50°C / +80°C							

* Dimension after crimping

THE THREADED EARTH BOND






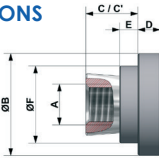
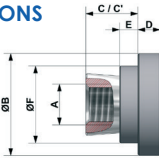
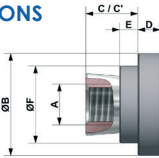
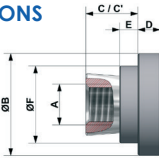
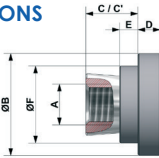
TESTS, PERFORMANCES, STANDARDS & DIMENSIONS

► USE WITH ALUMINIUM PLATE

THREAD	M8	M8	M10	M10	
PLATE THICKNESS	1,5 - 4 mm	> 4	2 - 4	> 4	
DRILLING DIAMETER (mm)	15 / 15,2	13,5 / 13,7	19 / 19,2	15 / 15,2	
PACKAGING (20 PCS/BOX)					
EARTH BOND PN.	81931	81930	80959	80961	
ALSTOM APPROVAL №	NA	NA	DTR0000001262	DTR0000000079	
BOMBARDIER APPROVAL №	33GH000025-3623	NA	3EGH000038-6908 3EER400005-4647	3EER300001-0322	
LONG DRILL	OFE1500042	OFE1350037	OFE1900051	OFE1500042	
SHORT DRILL	OFE1500018	OFE1350019	OFE1900022	OFE1500018	
SETTING TOOL	PMT8 / PMA10		PMT10 / PMA10		
A4-80 SS FASTENING	81922 		81921 		
MAXIMUM TORQUE VALUE	25 N.m		50 N.m		
DIMENSIONS (mm)		A M8 B 20 C C' 12 (7)* D 4,5 E 4,5 F 15 G G' 16,5 (21,5)*	A M8 B 20 C C' 15 (12)* D 3,5 E 11 F 13,5 G G' 19 (22)*	A M10 B 25 C C' 12 (5)* D 5,5 E 4,5 F 19 G G' 24 (31)*	A M10 B 25 C C' 15,5 (12,5)* D 3,5 E 11 F 15 G G' 28 (31)*
WEIGHT	19 g	22 g	34 g	36 g	
BUSH RAW MATERIAL	Nickel plated aluminium				
ELECTRICAL PERFORMANCE :					
ELECTRICAL RESISTANCE LUG / PLATE - NF F00-363	20 µΩ	20 µΩ	20 µΩ	20 µΩ	
SHORT CIRCUIT RESISTANCE	3 × 15 kA	3 × 20 kA	3 × 20 kA	3 × 20 kA	
ELECTRICAL CONTACT SURFACE EARTH BOND / SURFACE NF F00-363	210 sqmm	465 sqmm	270 sqmm	520 sqmm	
CORROSION RESISTANCE 500 H IN SALT MIST NF EN 3373	-	-	50 µΩ	-	
MECHANICAL PERFORMANCE :					
TENSILE LOAD TEST NF F00-363	2 mm 4 mm	100 daN -	- 400 daN	200 daN -	
SHEARING	1,5 mm 2 mm 4 mm	- - -	- - -	- 105 daN 310 daN	
VIBRATION BS EN 61373	-	-	4 g - 10 à 500 Hz 90 min/axis	4 g - 10 à 500 Hz 90 min/axis	
SHOCKS BS EN 61373	-	-	300 g - 30 ms 3 shocks/axis	300 g - 3 ms 3 shocks/axis	
SEALING	IP65				
SCALE TEMPERATURE USAGE	-50°C / +80°C				





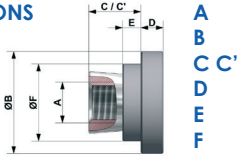
* Dimension after crimping

► USE WITH STEEL & STAINLESS STEEL PLATE

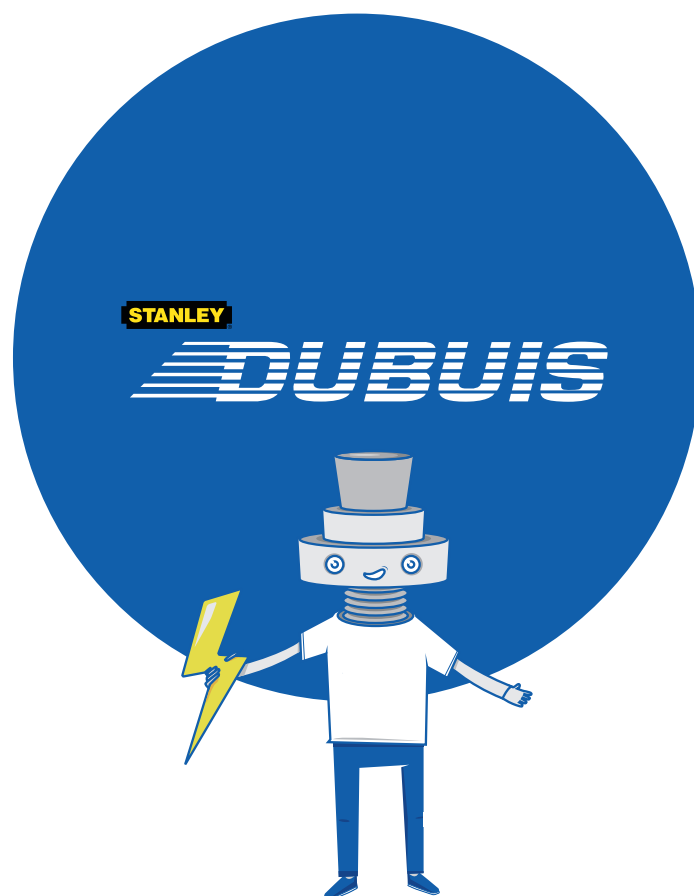
THREAD	M6	M6	M8	M8	M10	
PLATE THICKNESS	> 4	1,5 - 4 mm	> 4	1,5 - 4 mm	2 - 4	
DRILLING DIAMETER (mm)	11,5 / 11,7	11,5 / 11,7	13,5 / 13,7	15 / 15,2	19 / 19,2	
PICTURE (20 PCS/BOX)						
EARTH BOND PN.	77902	81963	77945	81965	81967	
ALSTOM APPROVAL №	NA	DTR0000209903	NA	NA	NA	
LONG DRILL	OFE1150044	OFE1150044	OFE1350037	OFE1500042	OFE1900051	
SHORT DRILL	OFE1150018	OFE1150018	OFE1350019	OFE1500018	OFE1900022	
SETTING TOOL	PMTc6 / PMA10		PMT8 / PMA10		PMT10 / PMA10	
A4-80 SS FASTENING	78913		78914		78915	
MAXIMUM TORQUE VALUE	16 N.m	10 N.m	25 N.m	20 N.m	30 N.m	
DIMENSIONS (mm)						
	A	M6	M6	M8	M8	
	B	16	16	25	20	
	C / C'	16 (12)*	10,5 (5,5)*	11 (8)*	12,5 (5,5)*	
	D	4,5	4,5	3,5	5,5	
	E	11	4,5	7	4,5	
	F	11,5	11,5	13,5	15	
WEIGHT	15 g	10 g	20 g	17 g	28 g	
BUSH RAW MATERIAL	Tined copper					
ELECTRICAL PERFORMANCE :						
ELECTRICAL RESISTANCE LUG / PLATE - NF F00-363	Steel SS	25 μΩ 120 μΩ	25 μΩ 120 μΩ	20 μΩ 70 μΩ	20 μΩ 70 μΩ	20 μΩ 70 μΩ
SHORT CIRCUIT RESISTANCE	Steel SS	- -	3 × 15 kA 3 × 10 kA	- -	3 × 15 kA 3 × 10 kA	3 × 15 kA
ELECTRICAL CONTACT SURFACE EARTH BOND / SURFACE NF F00-363		400 sqmm	160 sqmm	300 sqmm	210 sqmm	270 sqmm
CORROSION RESISTANCE 500 H IN SALT MIST NF EN 3373	Steel SS	- -	30 μΩ 150 μΩ	- -	- -	25 μΩ 900 μΩ
MECHANICAL PERFORMANCE :						
TENSILE LOAD TEST NF F00-363	2 mm 4 mm	- -	400 daN 600 daN	- -	300 daN 700 daN	500 daN 800 daN
SHEARING		-	-	-	-	-
VIBRATION BS EN 61373		-	-	-	-	-
SHOCKS BS EN 61373		-	-	-	-	-
SEALING				IP65		
SCALE TEMPERATURE USAGE				-50°C / +80°C		

* Dimension after crimping

► USE WITH ALUMINIUM PLATE

THREAD	M6	M8	M8	M10	
PLATE THICKNESS	1,5 - 4 mm	1,5 - 4 mm	> 4	2 - 4	
DRILLING DIAMETER (mm)	11,5 / 11,7	15 / 15,2	13,5 / 13,7	19 / 19,2	
PICTURE (20 PCS/BOX)					
EARTH BOND PN.	81964	81966	77946	81968	
ALSTOM APPROVAL №	DTR0000125537	NA	NA	DTR0000125310	
BOMBARDIER APPROVAL №	NA	NA	NA	3EER4000010-4201	
LONG DRILL SHORT DRILL	OFE1150044 OFE1150018	OFE1500042 OFE1500018	OFE1350037 OFE1350019	OFE1900051 OFE1900022	
SETTING TOOL	PMTC6 / PMA10	PMT8 / PMA10		PMT10 / PMA10	
A4-80 SS FASTENING	78913	78914		78915	
MAXIMUM TORQUE VALUE	10 N.m	20 N.m	25 N.m	30 N.m	
DIMENSIONS (mm)		M6 16 10,5 (5,5)* 4,5 4,5 11,5	M8 20 12,5 (5,5)* 5,5 4,5 15	M8 20 11 (8)* 3,5 7 13,5	M10 25 13 (7)* 5,5 4,5 19
WEIGHT	6 g	9 g	8 g	14 g	
BUSH RAW MATERIAL	Nickel plated aluminium				
ELECTRICAL PERFORMANCE :					
ELECTRICAL RESISTANCE LUG / PLATE - NF F00-363	60 µΩ	20 µΩ	40 µΩ	20 µΩ	
SHORT CIRCUIT RESISTANCE	3 × 10 kA	3 × 15 kA	-	3 × 20 kA	
ELECTRICAL CONTACT SURFACE EARTH BOND / SURFACE NF F00-363	160 sqmm	210 sqmm	300 sqmm	270 sqmm	
CORROSION RESISTANCE 500 H IN SALT MIST NF EN 3373	90 µΩ	-	-	-	
MECHANICAL PERFORMANCE :					
TENSILE LOAD TEST NF F00-363	250 daN 450 daN	200 daN 550 daN	- -	300 daN 650 daN	
SHEARING	-	-	-	-	
VIBRATION BS EN 61373	-	-	-	-	
SHOCKS BS EN 61373	-	-	-	-	
SEALING	IP65				
SCALE TEMPERATURE USAGE	-50°C / +80°C				

* Dimension after crimping



Tél. : +33 (0) 2 54 52 40 00
Fax : +33 (0) 2 54 20 05 75
commercial@dubuis.com
www.dubuis.com

17 - 19 Rue Jules Berthonneau
C.S. 73406 - 41034 BLOIS CEDEX - FRANCE