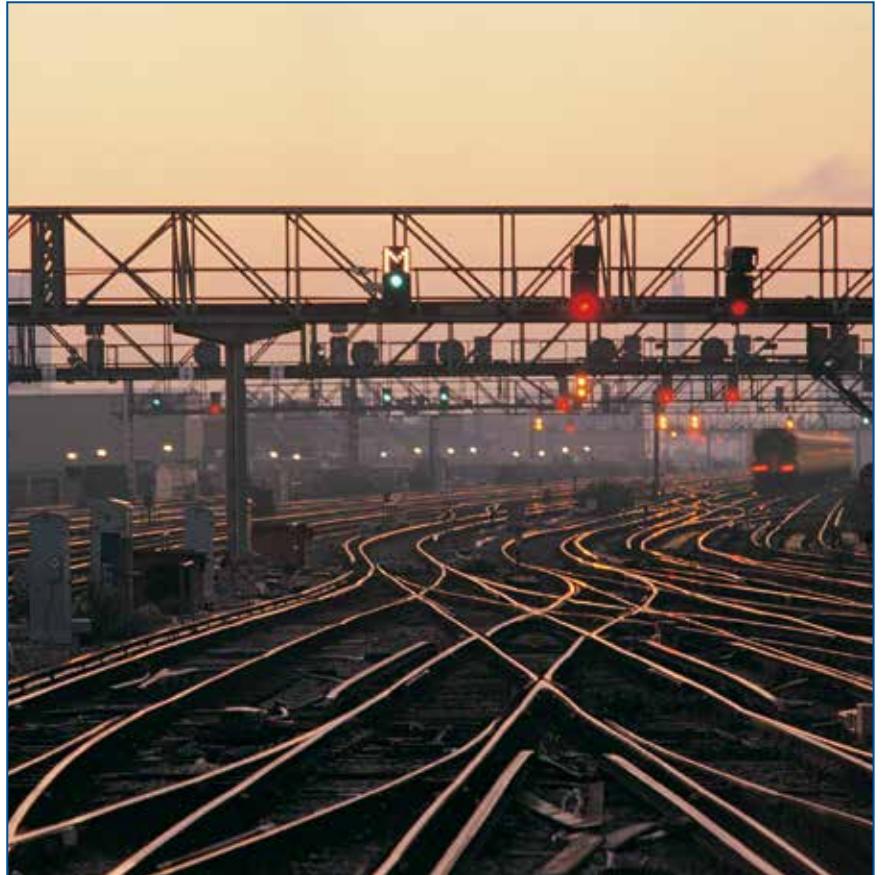


ERICO ERICONTACT

PRODUCTS FOR RAILWAYS



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Introduction

Introduction

Pentair Engineered Electrical & Fastening Solutions is a leading global manufacturer and marketer of superior engineered products for niche electrical, mechanical and concrete applications. These Pentair products are sold globally under a variety of market-leading brands: ERICO welded electrical connections, facility electrical protection, and rail and industrial products; CADDY fixing, fastening and support products; ERIFLEX low voltage power and grounding connections; and LENTON engineered systems for concrete reinforcement.

For more information on ERICO, CADDY, ERIFLEX and LENTON, please visit erico.pentair.com.

1. Introduction Rail Contacts

When an electrical contact is required, Pentair can supply copper inserts for bolted lug connections, which can be installed or removed with the same hydraulic tool.

+++ The ideal electrical contact for rail webs +++

1.1 Rail Contacts

The SK and DSK series of railcontacts provides a very high quality connection to the rail web with a very low contact resistance ($< 5 \mu\Omega$).

The contacts are quickly and easily fitted by means of a hydraulic tool, regardless of the weather conditions. All components of the fitting are manufactured according to high standards and norms.

Single rail contact SK



The SK series of railcontacts are the ideal solution for signal engineering, earthing, traction return current and similar applications.



Components:

1. M12 stainless steel washer
2. Electrolytically tin plated copper bush
3. M12 standard stainless steel bolt.
4. M12 stainless steel flat washer
5. M12 stainless steel self-locking nut or galvanized full metal locking nut (depending on contact type).

Single contact SK

Double rail contact DSK



Detachable cable lugs can be connected to DSK series double rail contacts from both sides of the rail simultaneously. This is an enormous advantage when making interconnections in the station area, for example. Compared to the conventional SK rail contact, the DSK halves the number of necessary contacts.

The DSK double contact is the ideal solution even in confined spaces, such as around points, for example. With a clearance of only 50 mm between the rail heads, the contact can still be inserted and the cable lug fitted from both sides.



Components:

1. Electrolytically tin plated copper bushes
2. M12 standard stainless steel bolt.
3. M12 stainless steel self-locking nut or galvanized full metal locking nut (depending on contact type).
4. M12 stainless steel washers.

Double contact DSK

- Same electrical resistance on the two sides of the contact
- The contact surface of the two copper bushes is made inside the rail.

1.2 Overview Rail Contacts.

Rail Contacts 19 mm

Description (rail contact)	ERICO Part Number	Web thickness (mm)	Rail types
SK 19/12 (Single rail contact)	715045	12,0 –13,9	S41, Ri59, Ri60, AS 41, BHP 42, BS90A
SK 19/14 (Single rail contact)	715050	14,0 –16,9	S49, S54, UIC54, UIC60, R50, NP 46, AS50, AS60, BS110A, 132, 127, 115, 100, 85
SK 19/16 (Single rail contact)	715095	17,0 –18,5	R65, 141, 136
SK 19/18 (Single rail contact)	715085	18,6 – 22,0	BS 113A, 95LB RBS, 140
DSK 19/12 (Double rail contact)	715060	12,0 –13,4	S41, Ri59, Ri60, AS41, BHP 42
DSK 19/14* (Double rail contact)	715055	13,5-15,5	S49, NP 46, AS50, 100, 85
DSK 19/14B (Double rail contact)	715056	12,0-14,0	S41, S49, NP46, Ri59, Ri60, BS90A
DSK 19/16* (Double rail contact)	715065	15,6-17,0	S54, UIC 54, UIC60, R50, AS60, BS110A, 132, 127, 115
DSK 19/14-16 (Universal double contact)	715057	13,5 – 16,5	S49, NP 46, AS50 S54, UIC 54, UIC60, R50, AS60, BS110A, 132, 127, 115, 100, 85
DSK 19/18 (Double rail contact)	715090	17,1-20,0	BS 113A, 95 LB RBS, R65, 141, 140, 136

* Will be replaced by the universal contact DSK 19/14-16, part number 715057

The double contact “DSK 19/14B” is a special contact with a limited height of the bolt. This contact can be used in a rail switch area.

Benefits and features rail contacts

- Easy to install
- A very low contact resistance (< 5 $\mu\Omega$).
- A standard bolt M12 is used for the single contact SK 19 and the double contact DSK 19. Easier for maintenance.

Rail Contacts 22 mm

Description (rail contact)	ERICO Part Number	Web thickness (mm)	Rail types
SK 22/14 (Single rail contact)	715074	14,0 – 17,9	S49, S54, UIC50, UIC54, UIC60, NP46, AS60KG, AS50KG, BHP53KG, BS110A, R50, 141, 136, 132, 127, 115, 100, 85
SK 22/20 (Single rail contact)	715070	18,0 – 22,0	BS113A, 95 LB RBS, R65, 140
DSK 22/14 (double rail contact)	715092	14,0 – 17,9	Same Rail types as SK 22/14

Rail Contacts 13,5 mm

Description (rail contact)	ERICO Part Number	Web thickness (mm)	Rail types
SK 13,5 (Single rail contact)	715073	12,0 – 15,5	S41, S54, UIC50, UIC54, UIC60, BS90A, NP46, Ri59,
SK 13,5 / 16,5 (Single rail contact)	715098	15,5 – 17,0	Ri60, AS60KG, AS50KG, AS41KG, BHP53KG, BHP42KG, BS110A, R50, 115, 100, 85
DSK 13,5 (double rail contact)	715091	12,0 – 16,5	Same Rail types as listed above

Rail Contacts 8 mm (used for signaling)

Description (rail contact)	ERICO Part Number	Web thickness (mm)	Rail types
SK 8/12 (Single rail contact)	715071	12,0 – 14,0	S41, BS90A, NP46, Ri59, Ri60, AS41KG, BHP42KG
SK 8/14 (Single rail contact)	715072	14,0 – 16,5	S49, NP 46, AS50 S54, UIC 54, UIC60, R50, AS60, BS110A, 132, 127, 115, 100, 85

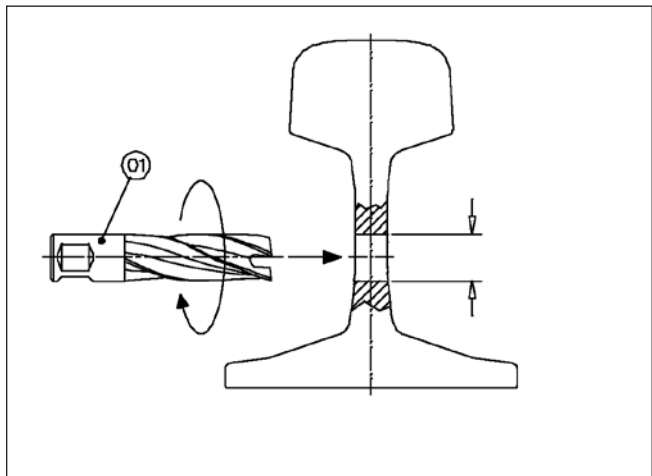
Assembly Rail Contacts

The assembly of the rail contacts for the 8 mm, the 13.5 mm and the 22 mm consist of copper bushes, a stainless steel bolt, a galvanized steel locking nut, stainless steel washers and for the single contact an additional special washer.

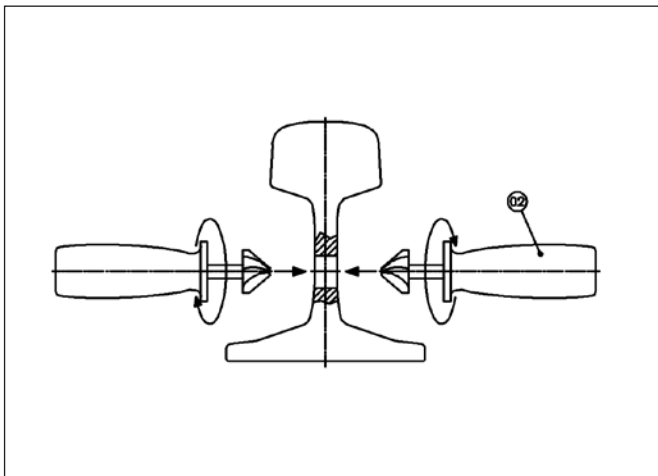
1.3 Installation of Rail Contacts.

After drilling the hole in the rail, the rail contact can be installed. In order to avoid the risk of corrosion, installation immediately after drilling is recommended.

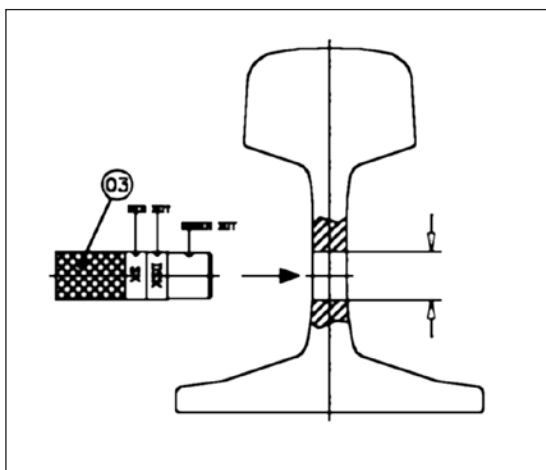
Installation of rail contacts with the HSKE or ASKE is as follows:



Step 1: Drilling hole in rail.



Step 2 : Deburr rail on both sides.

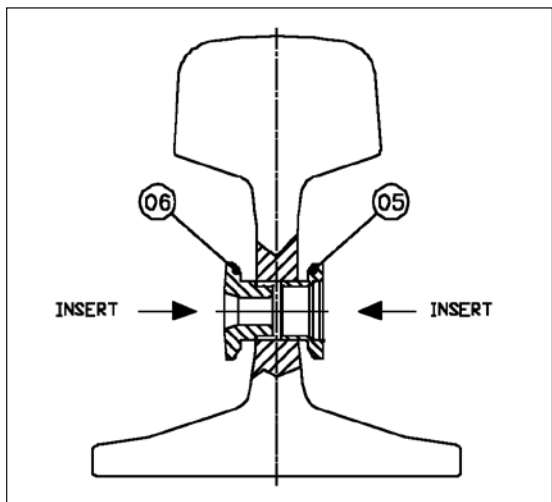


Rail contact

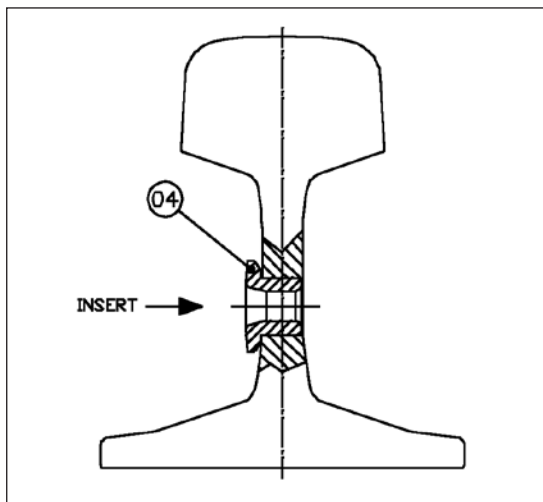
Testgauge (Article nr.)

SK 8	716540
SK/DSK 13,5	716541
SK/DSK 19	715645
SK/DSK 22	716542

Step 3 :
Checking diameter with test gauge.
Green dot: diameter is correct.
Red dot: diameter is wrong.



Step 4A: Installation double rail contact by hand



Step 4B: Installation single rail contact by hand

For the SK/DSK 13.5 the head part of the hydraulic unit for turning the mandrel needs to be changed in order to mount the mandrel for the SK/DSK 13.5. For the SK 8 an adapter needs to be mounted on the original headpart of the hydraulic unit.

Railcontact	Adapter for HSKE or ASKE (ERICO Part No.)	Mandrel (ERICO Part No.)
SK 8	715218	715216
SK /DSK 13,5	715219	715217
SK/DSK 19	n.a	715215
SK/DSK 22	n.a	715215

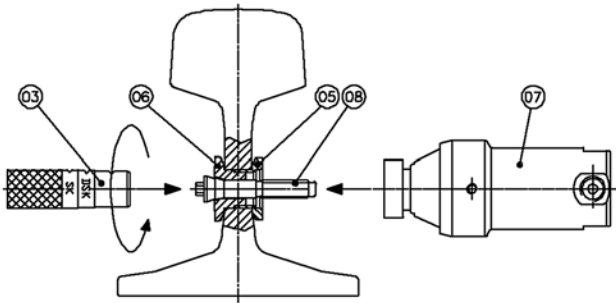
If you want to press a railcontact SK 22 or DSK 22 you also need to change the pressure plate. The part number of the pressure plate is 715596.



Standard hydraulic head

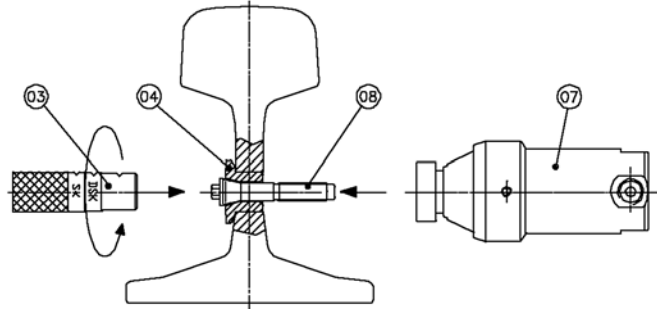


Hydraulic head with pressure plate suitable for SK 22 and DSK 22



Step 5A: Sticking mandrel through double rail contact

Stick mandrel through rail contact. Turn mandrel in PSKE-unit with the aid of the hexagon hole in the test gauge.

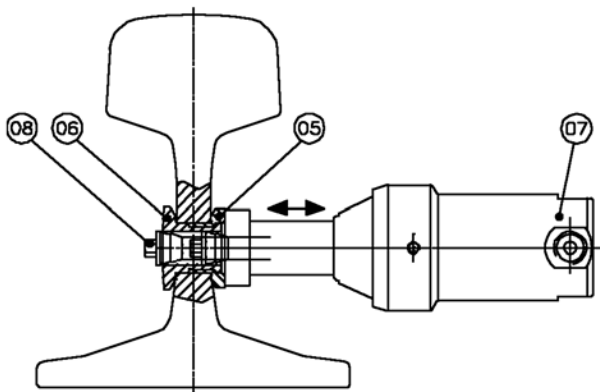


Step 5B: Sticking mandrel through single rail contact

Stick mandrel through rail contact. Turn mandrel in PSKE-unit with the aid of the hexagon hole in the test gauge.

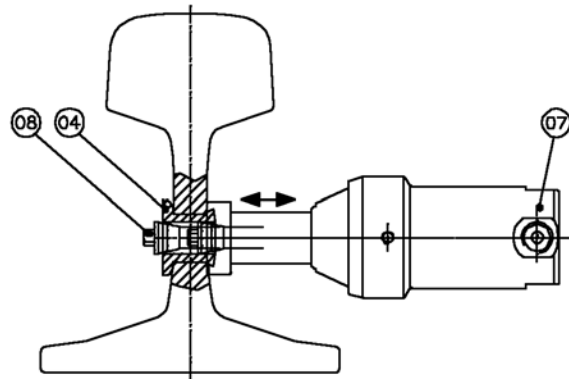
Attention:

Turn the mandrel completely in head part of PSKE-unit. In case mandrel is partly turned in head part, thread of mandrel and/or head part will be seriously damaged!



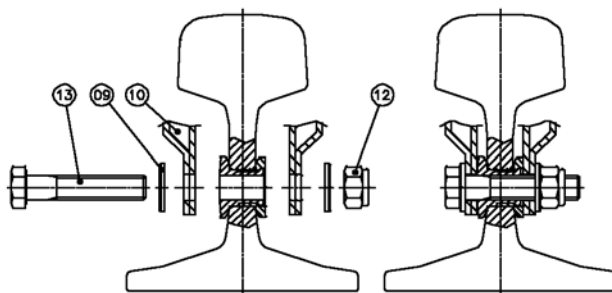
Step 6A: Installation double rail contact.

Pressure on PSKE. Mandrel is pulled through double rail contact



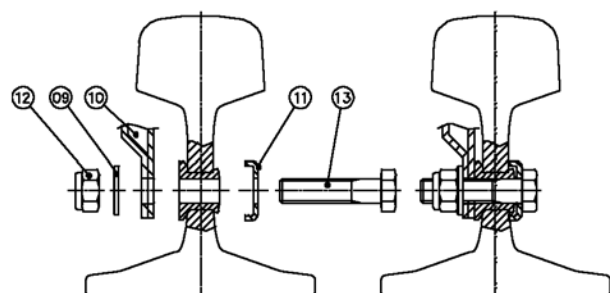
Step 6B: Installation single rail contact.

Pressure on PSKE. Mandrel is pulled through single rail contact



Step 7A: Installation cable lugs.

Installation of cable lugs. (one on each side) Torque on nut has to be 80 Nm.



Step 7B: Installation cable lug.

Installation of cable lug. Torque on nut has to be 80 Nm.

Pos. Nr.	Description	ERICO Part No.	Remarks
1	Drill	n.a.	
2	Deburr tool	715460	In supply of HSKE or ASKE
3	Test gauge	715645	In supply of HSKE or ASKE
4	Bush single rail contact	n.a.	Part of rail contact
5	Outside bush rail contact	n.a.	Part of rail contact
6	Inside bush double rail contact	n.a.	Part of rail contact
7	HSKE or ASKE	715345 (HSKE) or 715350 (ASKE)	
8	Mandrel	715215	In supply of HSKE or ASKE
9	Washer (stainless A2)	n.a.	Part of rail contact
10	Cable lug	n.a.	
11	Special Washer	n.a.	Part of rail contact
12	Locking nut	n.a.	Part of rail contact
13	Bolt (stainless A2)	n.a.	Part of rail contact

1.4 Removal of Rail Contacts

In case the wrong rail contact has been installed (e.g. double rail contact mixed with single or used rail contact is for other web thickness) the HSKE or ASKE can be used for removal of contacts as well.

For removing a rail contact, a pull out bush and pull out mandrel are needed. These two additional items do not belong to the standard supply of the HSKE, but can be ordered as follows.

Description	ERICO Part Number
Pull out mandrel SK19 & 22 and DSK19 & 22	716340
Pull out bush for SK19 & 22 and DSK19 & 22	716325
Set pull out bush/pull out mandrel SK19 & 22 and DSK19 & 22	716336
Set pull out bush/pull out mandrel SK 8	716338
Set pull out bush/pull out mandrel SK 13.5 and DSK 13.5	716339

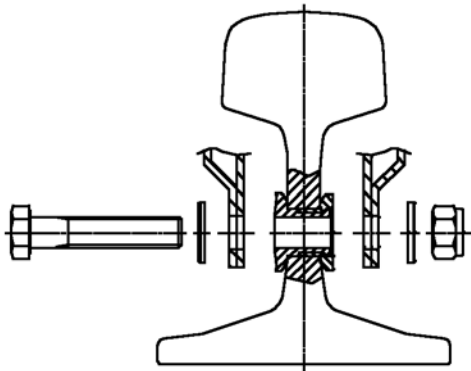
For the SK 8 and SK/DSK 13.5 the head part of the hydraulic unit for turning the mandrel in needs to be changed with an adapter to mount the pull out mandrel for the SK 8 and SK/DSK 13.5.



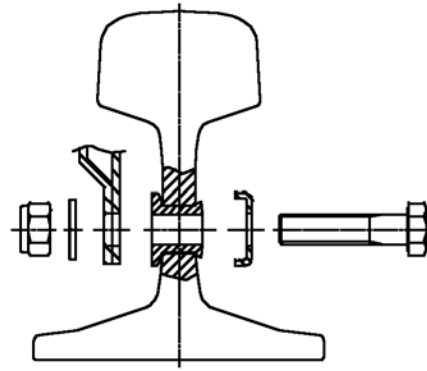
Pull out bush and mandrel

After removal of a rail contact a new rail contact can be installed in the same hole.

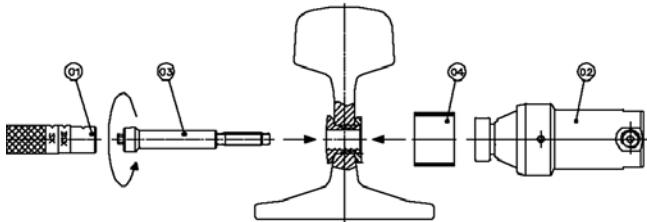
Remove rail contacts with the HSKE or ASKE:



Step 1A: Remove cable lugs and screw / nut of double rail contact

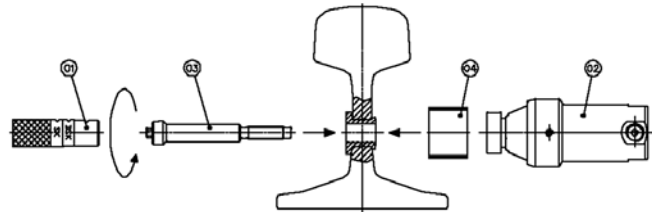


Step 1B: Remove cable lug and screw / nut of single rail contact



Step 2A: Pushing pull out mandrel through double rail contact

Push pull out mandrel through rail contact and pull out bush. Turn pull out mandrel in PSKE-unit with the aid of the hexagon hole in the test gauge.

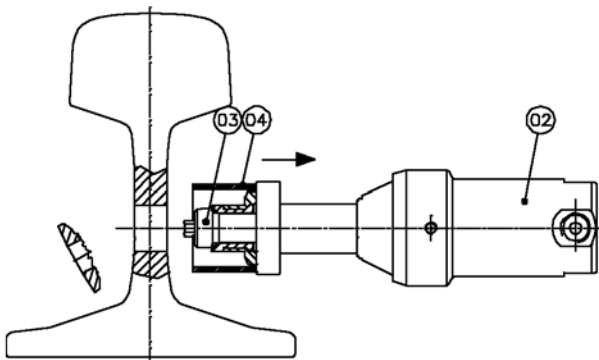


Step 2B: Pushing pull out mandrel through single rail contact

Push pull out mandrel through rail contact and pull out bush. Turn pull out mandrel in PSKE-unit with the aid of the hexagon hole in the test gauge.

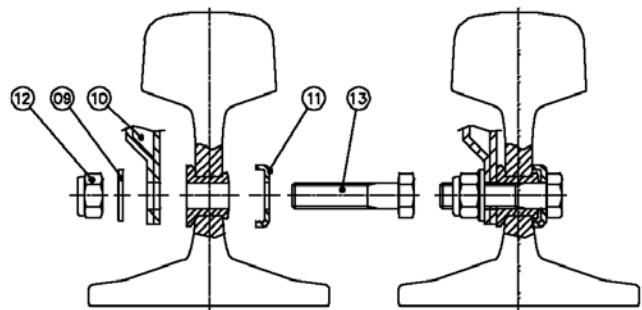
Attention:

Turn the pull out mandrel completely in head part of PSKE-unit. In case mandrel is partly turned in head part, thread of mandrel and/or head part will seriously be damaged!



Step 3A: Removal double rail contact.

Pressure on PSKE. Mandrel is pulled through double rail contact. Double rail contact breaks.

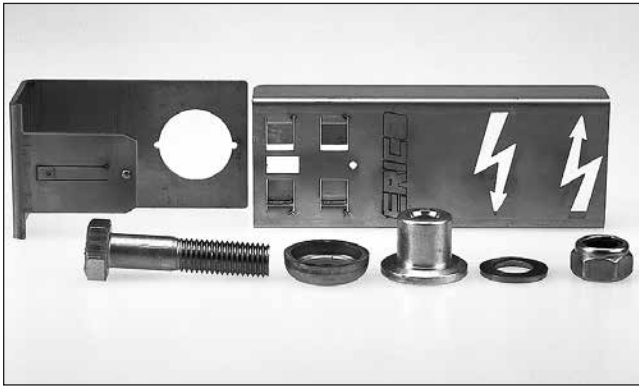


Step 3A: Removal single rail contact.

Pressure on PSKE. Mandrel is pulled through single rail contact. Single rail contact breaks.

Legend of item numbers:	Pos. Nr.	Description
	1	Test gauge
	2	HSKE or ASKE
	3	Pull out mandrel
	4	Pull out bush

1.5 Coverplate



Coverplate for the ERICO 19 mm railcontact for use for earthing and return current connections. The coverplate can be mounted on a single contact SK19/14 or SK 19/16.

Description	ERICO Part Number
Coverplate	715335
Coverplate with SK 19/14 (Single rail contact)	715966
Coverplate with SK 19/16 (Single rail contact)	715967



Coverplate mounted on railcontact

2. Introduction Rail Drilling machines

Rail drilling equipment and accessories cover a range of hole diameters from 8 mm to 34 mm. ERICO light and whispering machines are a very attractive solutions for fast and reliable results. Applications include signaling connections for cables or axle counters, power connections and fishplates with or without insulation. The machines can be operated either with gasoline, or electrically with AC (230 V) or DC (48 V) power supply.

**+++ Our light Rail Drilling Machines for one-man operation. +++
Our whispering machines**

2.1 ERICO Rail Drilling Technology

ERICO Rail Drilling Technology has the following unique features:

- Light, easy to handle and compact drilling machines with a choice of drive motors
- Two-stroke petrol engine with a spindle speed of 267 rpm for the drill range up to 24 mm
- A slow drill with a spindle speed of 212 rpm for drills from 24 to 34 mm.
- Direct current disc drive engine of 48 V DC, 1.4 kW, battery powered with a spindle speed of 390 rpm.
- Alternating current motor of 230 V/AC, 1.5 kW with a spindle speed of 220 or 280 rpm.
- Compact storage of the drilling tools in transportable metal cases.
- Short drilling times because of spindle speeds adapted to each diameter.
- Simple and fast installation of the machine on the rails with quick loosening devices BSK 1 and BSK 2.
- Drilling unit can remain fixed to the rails by means of rail foot clamping unit BSF 1 while rail traffic is being maintained.
- Easily changeable rail profile template for all track profiles.
- Special templates for special uses. E.g. hinged profiles for grooved rails.
- Drilling holes at exact intervals with drilling gauges and special templates for axle counters, fishplates and insulated rail joints.
- Drilling program for all applications in the rail sector with the internationally accepted standard tool holding fixture "Weldon 19".
- Extensive range of accessories.
- Extensive range of services.
- Training possibilities by our specialized service personnel.
- A Pentair service center in Tilburg, the Netherlands.

2.2 Rail Drilling Machines

The highest priority for Pentair was to incorporate the customer requirements into the design of the 2-stroke, battery powered and 230 V rail drilling machines. This resulted in light, easy to handle and compact universal machines which can be used in overhead conductor installations for the SK and DSK rail contact systems.

Description	ERICO Part Number	Weight (without clamping device)
SBM-VS (267 rpm), 2-stroke engine	715685	13 kg
SBM-V4 (267 rpm), 4-stroke engine	715412	13 kg
SBM-E48V-DC, disc-rotor motor	715400	12 kg
SBM-E230V-AC (280 rpm), electro motor	715404	12 kg

The rail drilling machines are provided with a coolant system consisting of a coolant tank with

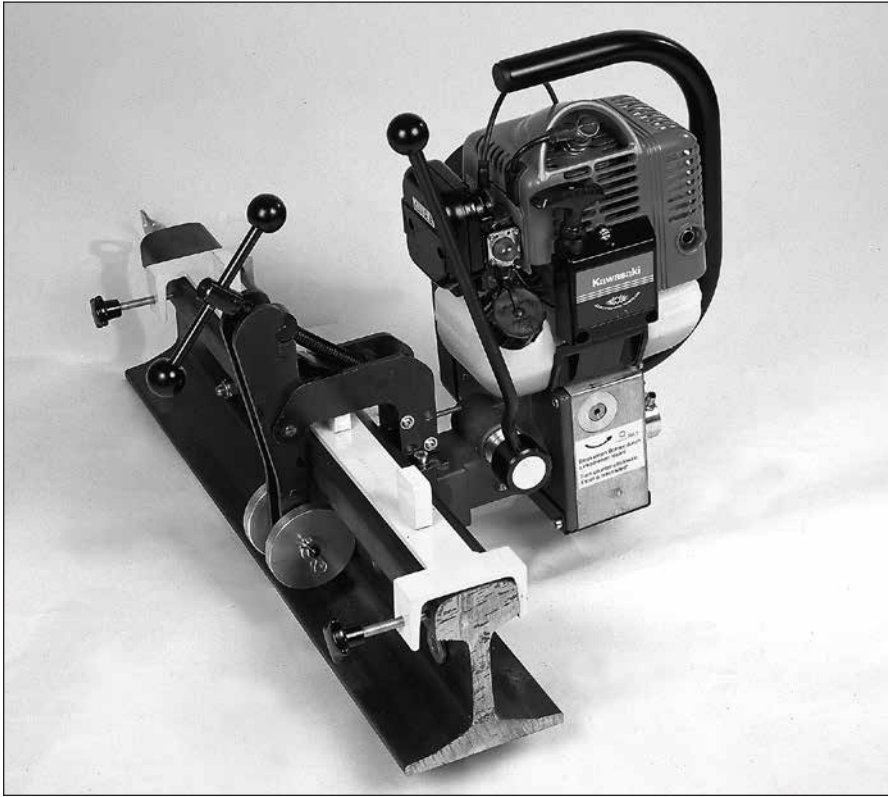
- pump (715375), a
- metal case (715695), a
- tooling set (715395) and
- grease pistol.

Clamping devices and rail profile templates have to be ordered separately and depend on railtype and the required drilling height.



Coolant tank with pump

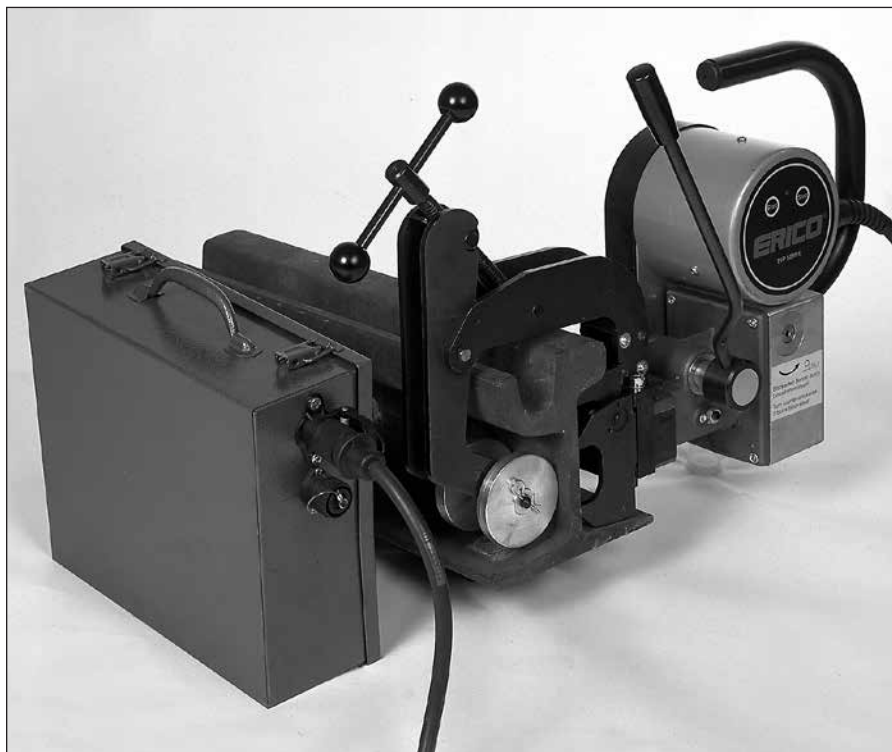
2.2.1 Rail Drilling Machine SBM-V (2-stroke engine)



Part Number.	SBM-VS 267 rpm (715685)
Weight	13 kg
Ext. dimensions (L x W x H):	330 x 480 x 270
Power output	1,4 kW
Speed	267 rpm
Hole diameter	8 – 36 mm
Drive	2 stroke engine
Tool holding fixture	Weldon shaft 19 mm
Max. rail thickness	50 mm
Cooling system valve opening.	Internal cooling system for hollow core drills with automatic coolant
Fuel	1:50 mixture
Kit includes	Drilling machine, coolant tank with pump, metal case, tool kit.

2.2.2 Rail drilling machine SBM-E48V

The SBM-E48V is a battery operated electrical machine with an electronic overload safety.



Part Number	SBM-E48V (715400)
Weight	12 kg
Ext. dimensions	
(L x W x H):	330 x 480 x 270
Power output	1,4 kW
Speed	390 rpm
Hole diameter	Max. 24 mm
Drive	48 V DC – disc rotor motor
Tool holding fixture	Weldon shaft 19 mm
Max. rail thickness	50 mm
Cooling system	Internal cooling system for hollow core drills with automatic coolant valve opening.
Kit includes pack and charger.	Drilling machine, coolant tank with pump, metal case, tool kit, battery
Applicable norms	EN 50081, EN 55011, EN 61000

Included in the kit of the SBM-E48V are a battery pack (715357) and a battery charger (715425).



Battery pack



Battery charger

2.2.3 Rail drilling machine SBM-E 230V



The SBM-E 230 V is one of the latest developments from Pentair. This resulted in a light, easy to handle compact universal drilling machine.

Part Nr.	SBM-E 230 V with 280 rpm (715404)
Weight	12 kg
Ext. dimensions	
(L x W x H):	330 x 480 x 270
Power output	1,5 kW
Speed	280 rpm
Hole diameter	8 – 36 mm
Drive	230 V AC
Tool holding fixture	Weldon shaft 19 mm
Max. rail thickness	50 mm
Cooling system	Internal cooling system for hollow core drills with automatic coolant valve opening.
Kit includes	Drilling machine, coolant tank with pump, metal case, tool kit
Applicable norms	EN 50081, EN 55011, EN 61000

Features

- Specific safety feature: a start/stop button with a delay of 0.8 seconds.
 - Electronic overload safety
 - Thermal overload safety in Electro motor.
 - Mechanical cable protection.
- On request this rail drilling machine is also available in 115 V – 50/60 Hz.

2.3 Fastening Devices, Rail Profile Templates and Distance Gauges

To position the rail drilling machine on the rail, rail fastening devices and rail profile templates are needed. These products have to be ordered separately.

All rail fastening devices and rail profile templates are suitable for the SBM-V, the SBM-E 48 V and the SBM-E 230 V rail drilling machines.

2.3.1 Rail fastening devices

Description	ERICO Part Number	Weight
Rail fastening device for normal rails, BSK 1	715360	3 kg
Rail fastening device for grooved rails, BSK 2	715370	4 kg
Rail fastening device for clamping rail drilling machine to the flange of the rails, BSF 1	715380	4 kg



Rail fastening device BSK1
for mounting over the rail head



Rail fastening device BSF 1 for clamping rail drilling
machine to the flange of the rails

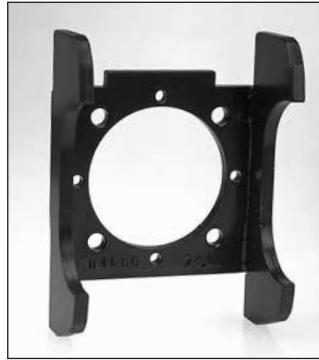


SBM-E 230 V with rail fastening device BSF1

2.3.2 Rail Profile Templates



Universal rail profile template



Rail profile template



Rail profile template for grooved rails

Description	ERICO Part Number
Normal rails	
Universal rail profile template S49, S54, UIC 60 (adjustable)	715365
Rail profile template for S49 (62,5 mm)	715510
Rail profile template for S54 (64 mm)	715555
Rail profile template for UIC 60 (76,3 mm)	715132
Rail profile template for UIC 54 (70 mm)	715533
Rail profile template for NP 46 (62,25 mm)	715532
Rail profile template for BS90A (57,15 mm)	715541
Rail profile template for FB 113A (65,09 mm)	715368
Rail profile template for FB 110A (65,09 mm)	715369
Grooved rails	
Rail profile template Ri 60 (73 mm)	715561

Individual templates are also available for other types of rails. More templates and drilling heights are available on request. On the next page you will find the special templates which can be used in combination with the distance gauges for Siemens/ Tiefenbach/ SEL.

2.3.3 Distance Gauges with and without Drill Guide

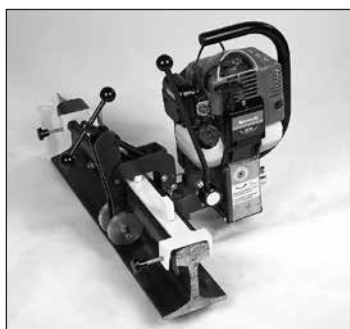
Distance gauges without drill guide are used as auxiliary devices for making drill hole spacings with a somewhat better precision of ± 1 mm, e.g. in case of fishplates or insulated rail joints.

Description	ERICO Part Number
Distance gauge for SEL (148 mm) without 2 star grips M8 - 50	716528
Distance gauge for SEL (148 mm) with 2 star grips M8 - 50	716526
Distance gauge for insulated rail joint MT (165 – 140 – 165) with 2 star grips M8 – 50	715266
Distance gauge for insulated rail joint MT (165-96-165) with 2 star grips M8 - 50	715267
Distance gauge for Tiefenbach (145 mm) without 2 star grips M8 - 50	716535
Distance gauge for Siemens (270 mm) without 2 star grips M 8 – 50	716532
Distance gauge for special dimensions	On request

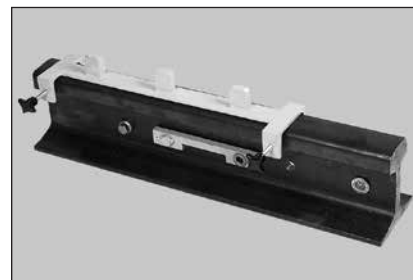
If necessary the star grips M8 – 50 (Part number 715531) can be ordered separately.



Distance gauge mounted on rail



Distance gauge and rail drilling machine mounted on rail



Distance gauge with drill guide

Also Pentair can deliver distance gauges with drill guides and star grips M8 – 50 for axle counters and wheel sensors by Siemens, SEL and Tiefenbach/Frauscher.

In general drill holes are needed with a diameter of 13 mm for these sensors. Therefore rail drill SSB 13, (ERICO Part No. 716320) is used with mounting adapter ASP 13 (ERICO Part No. 715037) and coolant adapter ZSP (ERICO Part No. 715520).

Description	Distance Gauge ERICO Part-Number	Railtype	Template Type with drilling height	ERICO Part-Number
Distance gauge Siemens with a middle distance of 270 mm	716527	S49	S 49/ 62,5 mm	715510
		S54	S 54/ 67,5 mm	715538
		UIC 60	UIC 60 / 85,5 mm	715537
Distance gauge Tiefenbach with a middle distance of 145 mm	716534	S49	S49 / 62,5 mm	715510
		S54	S54 / 67,5 mm	715538
		UIC 60	UIC 60 / 85,5 mm	715537
Distance gauge SEL with a middle distance of 148 mm	716526	S49	S49 / 64 mm	715511

3. Rail Contact Insertion Tool

For inserting the single and double contacts, Pentair offers two different high quality and high reliability assembly tools.

+++ The correct tool for every job +++

3.1 Rail Contact Insertion Tool HSKE (ERICO Part Number 715345)

Hydraulic head with manually-operated hydraulic pump

- Operating pressure 630 bar
- Pulling capacity 57 kN



The HSKE comes complete with:

- Mandrels
- Countersink tool
- Test gauge
- Metal case
- HSKE pump connected with a high pressure hydraulic hose to the PSKE unit
- Manual HSKE

3.2 Rail Contact Insertion tool ASKE (ERICO Part Number 715350)

Hydraulic head with battery-operated hydraulic pump

- Operating pressure 630 bar
- Pulling capacity 57 kN



The ASKE comes complete with:

- Mandrel
- Countersink tool
- Test gauge
- Metal case
- ASKE pump connected with a high pressure hydraulic hose to the PSKE unit
- Manual ASKE
- Battery charger LG1
- 12 Volt RA 3 battery

4. Drills

Pentair has a comprehensive assortment of drills for the most varied drilling jobs for all railway track profiles. All drill types are delivered with a Weldon mounting shaft Δ19 or an adapter for this standardized mounting shaft.

Most of the drills are provided with a TIALN coating that guarantees an optimal life.

Benefits and features Drills

**+++ The drills are developed for rail steel to have short drill times and a long lifetime.
Drills can be regrinded for further use +++**

4.1 SBPM or SBPML High Performance Hollow Core drills



Drill type	ERICO Part Number
SBPM 16	716306
SBPML 16	716307
SBPM 17	716324
SBPML 17	716308
SBPM 18	715274
SBPML 18	716309
SBPM19	715279
SBPML19	716310
SBPM 20	715272
SBPML 20	716311
SBPM22	715030
SBPML22	715280

Material	Powder metal HSS-XE steel
Coating	TIALN Multilayer coating
Ø range	16 – 22 mm
Drill length	SBPM = 70 mm, SBPML = 90 mm
Drill performance	Approx. 100 times drilling
Application	All railtypes
Regrinding	Approx. 5 x

4.2 SB or SBL Hollow Core Drills



Drill type	ERICO Part Number
SB 16	715251
SBL 16	716301
SB 17	715252
SBL 17	716302
SB 18	715253
SBL 18	716303
SB19	715250
SBL 19	716304
SB 20	715254
SBL 20	716305
SB 21	715256
SBL 21	716312
SB22	715255
SBL22	715260

Material	HSS-XE Steel
Coating	TIALN coating
Ø range	16 – 22 mm
Drill length	SB = 70 mm, SBL = 90 mm
Drill performance	Approx. 40 times drilling
Application	Rail types up to 850 M/mm ²
Regrinding	Economically not cost effective

4.3 High Performance Solid Drill SBV 19: Triple cutting action



Drill type	ERICO Part Number
SBV 19	715265

Material	Powder metal HSS Steel
Coating	TIALN coating
Ø range	Only 19 mm
Drill length	70 mm
Drill performance	Approx. 100 times drilling
Application	All drill types, very good centring characteristics
Regrinding	Approx. 5 x

4.4 SBHM Hollow Core Drills (hard metal tipped)

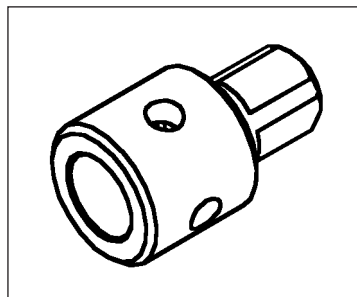


Drill type	ERICO Part Number
SBHM 22	715305
SBHM 24	716321
SBHM 26	716323
SBHM 28	716316
SBHM 30	716318
SBHM 31	716314
SBHM 32	716317
SBHM 33	716319
SBHM 34	716351

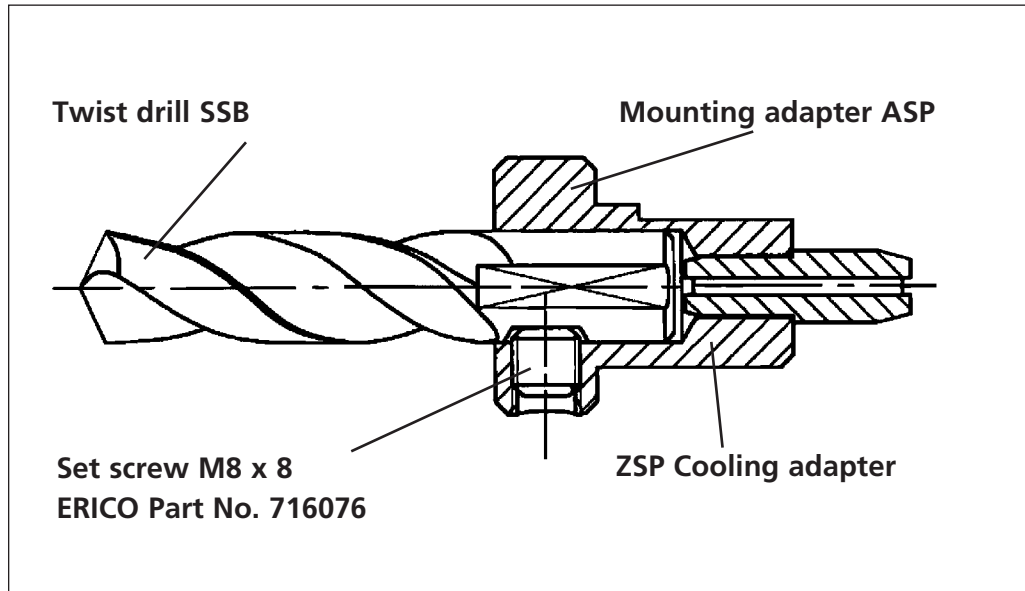
Material	Hard metal tipped hollow core drills
Ø range	22 - 34 mm
Drill length	62 mm
Drill length with adapter	93 mm
Drill performance	Approx. 50 times drilling
Railtypes	All railtypes
Regrinding	Depending on circumstances approx. 5 x

To obtain a longer length of the SBHM drill for drilling holes in grooved rails, Pentair has developed an adapter with a weldon shaft, which can be placed in the drilling machine. The SBHM drill can be placed in this adapter.

Drill type	ERICO Part Number.
Adapter SBHM	716172



4.5 Double Cutting Twist Drill Type SSB with Mounting Adapter ASP and Cooling Adapter ZSP



Drill type	ERICO Part Number	Adaptertype	ERICO Part Number	Cooling adapter ZSP ERICO Part Number
SSB 8	716315	ASP 8	716074	715520
SSB 9,5	716181	ASP 9.5	716074	715520
SSB 10,5	716182	ASP 10.5	716074	715520
SSB 12	716183	ASP 12	716074	715520
SSB 13	716320	ASP 13	716180	715520
SSB 13,5	716184	ASP 13	716180	715520
SSB 14	716186	ASP 13	716180	715520
SSB 15	716187	ASP 13	716180	715520
SSB 16	716188	ASP 13	716180	715520
SSB 17	716189	ASP 13	716180	715520
SSB 18	716191	ASP 13	716180	715520
SSB 19	716185	-----	-----	715520

The following sets (drill, adapter ASP and cooling adapter ZSP are available)

Diameter	Description	ERICO Part Number
Ø 8	Bohrerset SSB 8	715036
Ø 13	Bohrerset SSB 13	715037

Material	HSS-XE Steel
Coating	TIALN
Ø range	8 – 19 mm
Drill length	70 mm
Drill performance	Approx. 30 times drilling
Railtypes	All railtypes
Regrinding	Approx. 10 x

4.6 Two Step Drill 13 mm/ 13.5 mm

The two step drill of 13 mm/ 13.5 mm is needed to make the holes for the SK 13.5 and the DSK 13.5 mm railcontact.



Drill type	ERICO Part Number
Two step drill 13 mm / 13,5 m	715269

4.7 Cooling Pins for use with Hollow Core Drills

Cooling pins must be used in combination with the hollow core drills to allow the cooling mixture to flow to the drill and the rail, giving an optimal cooling performance.



Cooling pins $\varnothing \times l$ (mm)	For drill type	ERICO Part Number
6.3 x 83	SBPM, SB, SBHM	715660
6.3 x 110	SBHM with adapter	715325
6.3 x 104	SBPML, SBL	715670

5. Coolant and Antifreeze

Our coolant

- Can be mixed with water. (7 %) concentration is needed.
- Biodegradable
- Will increase the life of your drills and will not heat up the rail.



Description	ERICO Part Number
Coolant LR-1 concentrated (10 liter container)	715075
Antifreeze LP 7729 concentrated for working in freezing conditions (5 liter can). The antifreeze has to be mixed with water. See for mixture our service manual.	715080

6. Available Accessories

Description	ERICO Part Number
Battery charger for SBM-E 48 V machine	715425
Battery pack for SBM-E 48 V machine	715357
Metal case for accessories (drills, cooling pins, rail profile templates and other tools)	715515
Metal case for rail drilling machine SBM	715695
Toolset for SBM-V and SBM-E	715395
Mandrel PSKE for contact insertion	715215
Test gauge for SK and DSK	715645
Pull out Mandrel PSKE	716340
Pull out bush for pull out Mandrel PSKE	716325
Set pull out bush/pull out Mandrel	716336
Pressure plate for rail contact SK 22, DSK 22 and SK 22/20 or contacts from other brands. Please order also the 2 special screws (715700) to mount the bush on the hydraulic head of the HSKE or ASKE.	715596
Grease pump	715830
Oil for gearbox 75W90 (70 ml)	716326
Grease spray FS 5000 (for drilling without coolant)	715285
Coolant tank with pump	715375
Cable shoe 16/M8, DIN 46235	715107
Cable shoe 25/M8, DIN 46235	715108
Cable shoe 25/M12, DIN 46235	715112
Cable shoe 35/M12, DIN 46235	715109
Cable shoe 50/M12, DIN 46235	715135
Cable shoe 50/M16, DIN 46235	715105
Cable shoe 70/M10, DIN 46235	715101
Cable shoe 70/M12, DIN 46235	715220
Cable shoe 70/M16, DIN 46235	715100
Cable shoe 95/M12, DIN 46235	715125
Cable shoe 95/M16, DIN 46235	715120
Cable shoe 120/M12, DIN 46235	715115
Cable shoe 120/M16, DIN 46235	715110
Cable shoe 150/M12, DIN 46235	715106

7. Warranty

Pentair provides a 24 month warranty on the rail drilling machines and the hydraulic tooling HSKE and ASKE.

8. Rail Service Center in Tilburg, the Netherlands

Pentair offers its customers a comprehensive spare parts and repair service. In practice the technical complexity of the machine construction requires damage to the inside to be repaired in Tilburg/the Netherlands. Please contact our salesman or our sales offices.

In case of repairs please send the machine to:

ERICO B.V.

Rail Service Center

Jules Verneweg 75

5015 BG Tilburg

Tel.: 0031 13 58 35 172

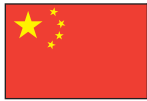
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WARNING

Pentair products shall be installed and used only as indicated in Pentair's product instruction sheets and training materials. Instruction sheets are available at www.erico.pentair.com and from your Pentair customer service representative. Improper installation, misuse, misapplication or other failure to completely follow Pentair's instructions and warnings may cause product malfunction, property damage, serious bodily injury and death and/or void your warranty.