

DRIESCHER
Indoor -
Switch-Disconnecter H 22

- Three-pole
- Rated voltage
12 kV, 24 kV, 36 kV and 38,5 kV
- Rated current
630 A and 1250 A



ELEKTROTECHNISCHE WERKE
FRITZ DRIESCHER & SÖHNE GMBH

D-85366 MOOSBURG • TEL. +49 87 61 6 81-0 • FAX +49 87 61 68 11 37
<http://www.driescher.com> infoservice@driescher.de



DRIESCHER - Indoor Switch-Disconnecter H 22

DIN VDE 0670, part 301 / IEC 60265-1

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Types of Switch-disconnectors

For many years DRIESCHER - indoor load-break switches have guaranteed an excellent position in switchgear engineering. These switch-disconnectors master the daily loads exerted under normal switching duty - for interrupting ring feeders, disconnecting network transformers and such - with very high operating frequencies and a minimum amount of maintenance.

These load-break switches are distinguished by simple design, absolute reliability in operation and easy actuation.

* see to page 3, energy storage mechanism

- **Type H 22 EK** - without trip-free release
- **Type H 22 EA** - with trip-free release*
- **Type H 22 SEA** - with trip-free release*, as well as cross rails attached below, mounted insulators and HV HBC fuse holders, for all-pole disconnection of the switch when a fuse operates.

The devices are fitted with an energy storage mechanism for quick-make and quick-break operation.

In load-break switches with fuse holders (Type SEA) only HV HBC fuses with pin release and a tripping impact force of min. 80 N are to be used (refer also to 791).

Operating conditions

The switches are designed for normal operating conditions according to IEC 60697, class „Minus 5 Indoor“. The peak value of the ambient temperature is 40° C; the average value over 24 hours is 35° C at best. The values of the insulating power are related to sea-level. Reduction in insulating capacity at heights up to 1000 m are negligible due to the decreasing insulating capacity of the air. At heights over 1000 m above sea-level the values for rated withstand alternating voltage

and rated impulse withstand voltage must be adjusted (e. g. at a height of 2000 m above sea-level, the insulating power of the air gaps is reduced by a factor of 0.89).

To each switchgear an instruction for transportation, mounting and putting into service is inclosed. This instruction which we certainly would send you in advance, has to be absolutely obeyed.

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Main advantages

- Absolute operational reliability
- Isolating distance visible after load disconnection
- Convenient dimensions
- Easy operation
- High operating frequency with minimum amount of maintenance

Energy storage mechanism

One of the robust, low-maintenance energy storage mechanisms of type EK or EA is mounted on the base frame, on which the three switch poles are installed. Many hundred thousands of these devices have already been used successfully in the H 22 switch-disconnector.

The EK energy storage mechanism operates with only one single torsion spring for quick-make and quick-break operation without trip-free release. The torsion spring is tensioned for switching ON or OFF. After tensioning, the spring energy is released for the particular switching operation (ON or OFF).

The EA energy storage mechanism operates with two torsion springs for trip-free quick-make and quick-break operation.

Both torsion springs are tensioned when the switch is closed.

The ON switch spring is tripped after tensioning and releases its energy for switching ON, while the OFF switch spring remains tensioned until it is released by the tripping device, HV HBC (high-voltage, high-breaking capacity) fuse links with striker pin, or manually for switching OFF (trip-free release*).

With non-manual release the operating shaft remains in the ON position and must be moved to the neutral position "OFF" manually for reclosing.

The actuation of the switches can take place via a linkage system operated by a lever or using mechanisms given in List 774 or List 776 (motor-operated mechanisms).

Switches mounted on the side can be operated directly by mounting a sleeve (with twelve-point socket, Size 24) on the operating shaft and with corresponding lever (with hexagon plug), refer to List 774.

Arc extinction

Upon breaking the main contacts ① open first and the current is briefly taken over by the parallel connected lagging pins ②. During this breaking motion opening springs ③ acting on the lagging pin are tensioned. On reaching a stop the lagging pin leaves the holding contact ④. The arc occurring between the arcing tip of the holding contact and the tungsten tip of the lagging pin is extinguished in the arcing chamber ⑤.

The arcing chamber itself is closed.

It is a device with four sections and has a pressure chamber ⑥ and an expansion chamber ⑦.

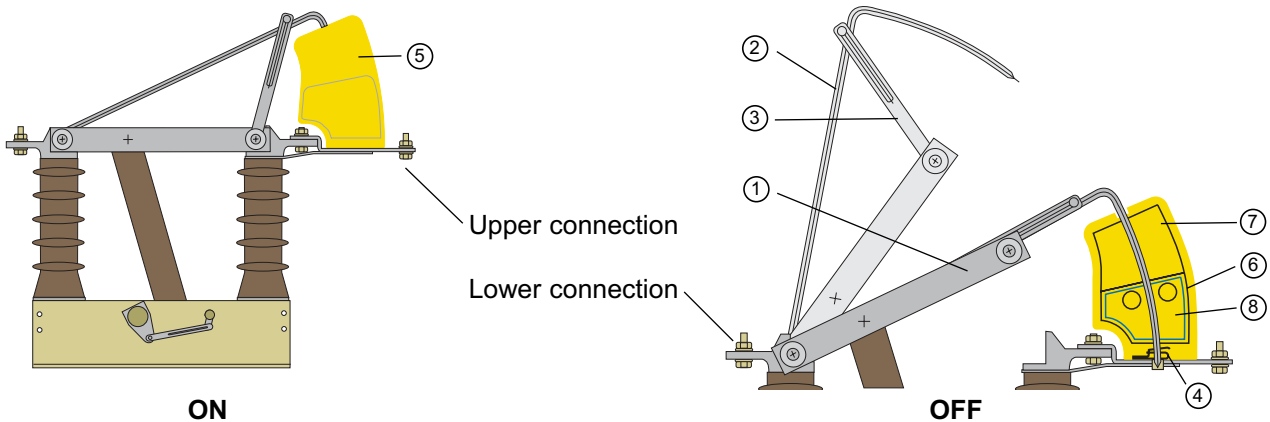
Arranged in the pressure chamber are two extinguishing plates ⑧ which are forced into the path of

the arc by lateral spring pressure.

At low currents the arc is extinguished by deionising action due to the cooling effect of the walls.

Arc extinction is achieved in the higher current range by the arc extinguishing gasses produced in the pressure chamber flowing out of the pressure chamber into the expansion chamber. Due to this rational combination of several extinguishing principles the entire current range of the load-break switch is effectively covered in all cases.

Since neither an arc extinguishing liquid nor compressed air are required, the arcing chambers are maintenance free.



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Additional possibilities of mounting

All types are available with high-speed earthing switches mounted above and below.

In types H 22 EK and EA the earthing switch is mounted above or below, on the switch frame (retrofitting is possible).

Type H 22 SEA are available with earthing switches integrated in the switch frame.

A **positive mechanical locking** between load-break switch and earthing switch is possible.

The earthing switches generally have short-circuit making capacity and are therefore make-proof.

Release coils or shunt releases (110 V, 230 V AC, or 24 V, 60 V, 110 V, 220 V DC) can only be mounted on switches with trip-free mechanism (not H 22 EK), signalling contacts can be mounted on all switches including earthing switches.

Note:

All H 22 SEA switches are available with **mechanical release delay (retarding)** as per IEC 420.

This feature provides an economical solution for the continuous protection of local network transformers through the HV HBC fuse on the high voltage side, this normally being implemented by a circuit breaker. Buchholz protector or thermal relay can also be provided with the load-break switch as additional protection measures.

The actuation of the load-break switch H 22 can be carried out with a linkage system operated by a lever or with a motor-operated mechanism according to List 776.

All steel parts are galvanised and chromatised.

Indoor actuators and accessories see 774

Drive rods and fuse tongs see 773
(system accessories)

Technical Data

DIN VDE 0670 part 301 / IEC 60265-1

Rated voltage	U _r	kV	12		24		36		38,5
Rated frequency	f _r	Hz	50		50		50		50
Rated-current	I _r	A	630	1250	630	1250	630	1250	630
Rated-peak withstand current	I _p	kA	50 ¹⁾	75 ¹⁾	50 ¹⁾	75 ¹⁾	32 ¹⁾	75 ¹⁾	32 ¹⁾
Rated-short-time current	I _k	kA	20 ¹⁾	30 ¹⁾	20 ¹⁾	30 ¹⁾	12,5 ¹⁾	30 ¹⁾	12,5 ¹⁾
Rated-making current	I _{ma}	kA	50	40	35	30	20	20	20
Rated-breaking current	I ₁	A	630	1250	630	1250	400	1000	630
Rated-loop breaking current	I _{2a}	A	630	1250	630	1250	630	1250	630
Rated-transformer off-load breaking current	I ₃	A	120	120	50		40		40
Rated-cable charging breaking current	I _{4a}	A	90	90	35		20		20
Rated-earth fault off-load breaking current	I _{6a}	A	300	300	200		100		100
Rated-cable charging breaking current below earth fault conditions	I _{6b}	A	90	90	35		20		20

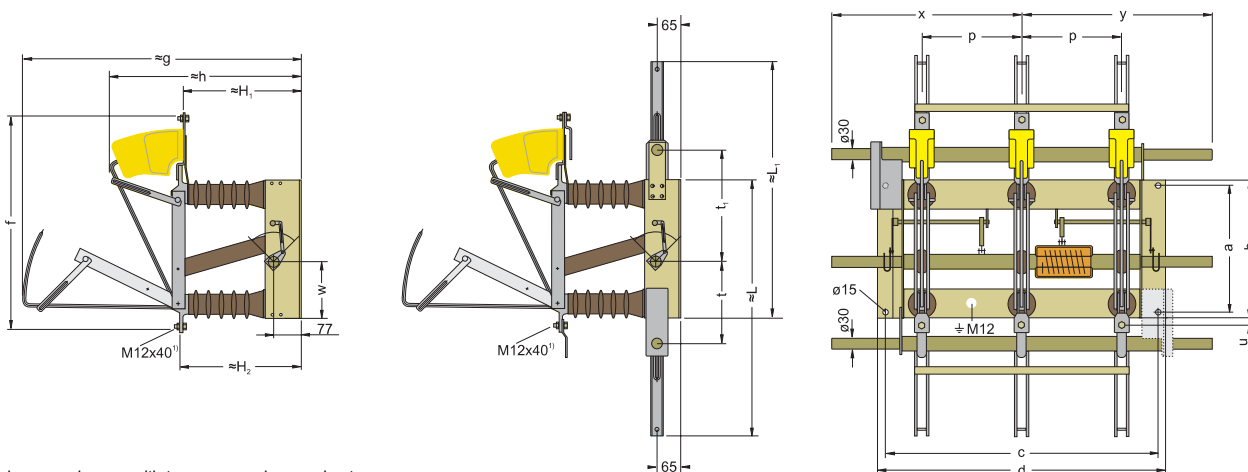
1) These values also apply to earthing switches

Insulation levels to VDE 0670, part 1000 / IEC 60694

Rated voltage	U _r	kV	12	24	36	38,5
Rated-impulse withstand voltage 1,2/50 μs	U _w					
Phase - Earth		kV	75	125	170	180
Phase - Phase		kV	75	125	170	180
Open Gap		kV	85	145	195	210
Rated-power frequency withstand voltage	U _d					
Phase - Earth		kV	28	50	70	80
Phase - Phase		kV	28	50	70	80
Open Gap		kV	32	60	80	90

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Indoor Switch-Disconnecter H 22 EK, 630 A



1) hexagonal screw with two span washers and nut

Type H 22 EK without earthing switch

Type H 22 EK with earthing switch mounted on top and below

• without earthing switch

Rated voltage	Rated current	Part-no.	p	a	b	c	d	f	≈ g	≈ h	≈ H ₁	≈ H ₂	u	w	x/y	Weight approx.kg	Drawing-no.
12 kV	630 A	722 40000	210	280	310	600	630	483	604	408	245	255	45	115	450	31,0	LI3-25189
12 kV	630 A	722 40200	155	280	310	450	480	483	604	408	245	255	45	115	290/340	28,5	LI3-25189
24 kV	630 A	722 50000	275	350	380	750	790	565	764	523	325	335	35	155	565	42,5	LI3-13302
36 kV	630 A	722 60000	400	450	500	1000	1040	665	974	632	435	445	35	195	775	74,0	LI3-25835
38,5 kV	630 A	722 60907	400	450	500	1000	1040	700	1040	661	465	475	35	195	775	77,0	LI3-70364

• Earthing switch on top

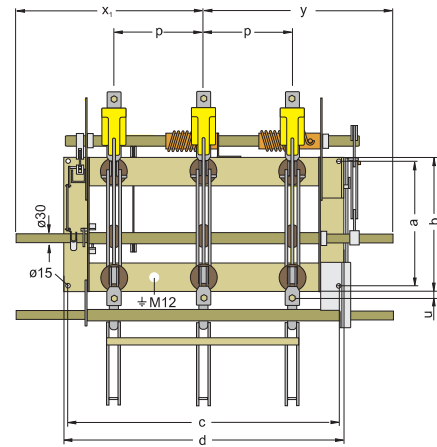
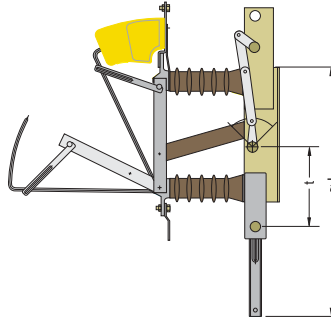
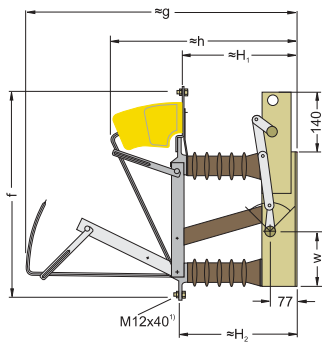
Rated voltage	Rated current	Part-no. with mechanical interlocking	Part-no. without mechanical interlocking	p	≈ L ₁	t ₁	Weight approx.kg	Drawing-no.
12 kV	630 A	722 40015	722 40012	210	573	290	42,0	LI3-25189
12 kV	630 A	722 40215	722 40212	155	573	290	38,0	LI3-25189
24 kV	630 A	722 50015	722 50012	275	723	320	55,5	LI3-13302
36 kV	630 A	722 60015	722 60012	400	965	420	90,0	LI3-25835
38,5 kV	630 A	72260925	722 60922	400	1012,5	457,5	91,5	LI3-70364

• Earthing switch below

Rated voltage	Rated current	Part-no. with mechanical interlocking	Part-no. without mechanical interlocking	p	≈ L	t	Weight approx.kg	Drawing-no.
12 kV	630 A	722 40014	722 40011	210	566	195	42,0	LI3-25189
12 kV	630 A	722 40214	722 40211	155	566	195	38,0	LI3-25189
24 kV	630 A	722 50014	722 50011	275	706	225	55,5	LI3-13302
36 kV	630 A	722 60014	722 60011	400	926	255	90,0	LI3-25835
38,5 kV	630 A	722 60924	722 60921	400	975	275	91,5	LI3-70364

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Indoor Switch-Disconnecter H 22 EA, 630 A



1) hexagonal screw with two span washers and nut

Type H 22 EA without earthing switch

Type H 22 EA with earthing switch mounted below

Without earthing switch

Rated voltage	Rated current	Part-no.	p	a	b	c	d	f	≈g	≈h	≈H ₁	≈H ₂	u	w	x/y	Weight approx.kg	Drawing-no.
12 kV	630 A	722 42000	210	280	310	600	630	483	604	408	245	255	45	115	450	31,0	LI3-26193
12 kV	630 A	722 42200	155	280	310	450	480	483	604	408	245	255	45	115	290/340	28,5	LI3-26193
24 kV	630 A	722 52000	275	350	380	750	790	565	764	523	325	335	35	155	565	42,5	LI3-13303
36 kV	630 A	722 62000	400	450	500	1000	1040	665	974	632	435	445	35	195	775	89,0	LI3-38176
38,5 kV	630 A	722 62907	400	450	500	1000	1040	700	1040	661	465	475	35	195	775	92,0	LI3-71343

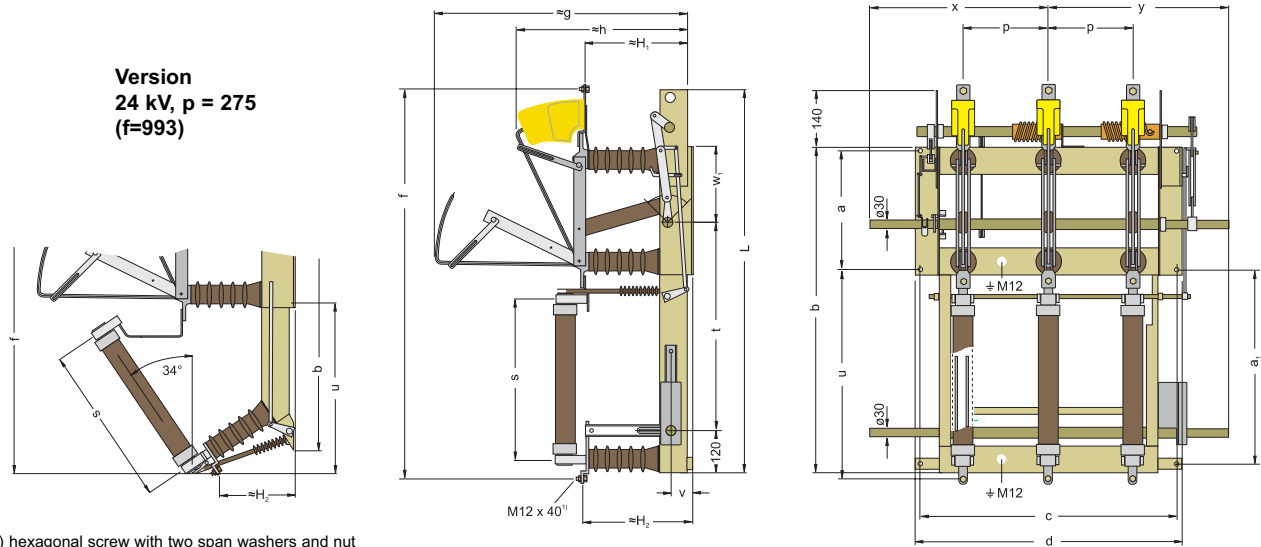
Earthing switch below

Rated voltage	Rated current	Part-no. with mechanical interlocking	Part-no. without mechanical interlocking	p	≈L	t	Weight approx.kg	Drawing-no.
12 kV	630 A	722 42014	722 42011	210	566	195	53,5	LI3-26193
12 kV	630 A	722 42214	722 42211	155	566	195	48,5	LI3-26193
24 kV	630 A	722 52014	722 52011	275	706	225	68,0	LI3-13303
36 kV	630 A	722 62014	722 62011	400	926	255	106,4	LI3-38176
38,5 kV	630 A	722 62924	722 62921	400	975	275	110,0	LI3-71343

Switch-disconnector H 22 EA with earthing switch mounted on top, please demand !

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Indoor Switch-Disconnecter H 22 SEA, 630 A



Type H 22 SEA with earthing switch mounted below

All-pole disconnection of the load-break switch when a fuse operates.
For HV HBC fuses please refer to List 791!

• Without earthing switch

Rated voltage	Rated current	p	a	a ₁	b	c	d	f	≈ g	≈ h	≈ H ₁	≈ H ₂	u	w	x/y
12 kV	630 A	210	280	420	750	600	630	918	604	408	245	247	480	195	450
12 kV	630 A	155	280	420	750	450	480	918	604	408	245	247	480	195	290/340
24 kV ^{a)}	630 A	275	350	-	752	-	-	993	764	523	325	232	463	225	565
24 kV ^{b)}	630 A	275	350	570	970	750	750	1150	764	523	325	327	620	225	565
36 kV	630 A	400	450	655	1175	1000	1040	1345	974	632	435	437	710	305	775
38,5 kV	630 A	400	450	770	1175	1000	1040	1380	1040	661	465	467	732,5	305	775

Rated voltage	Rated current	p	s	Part-no.	Weight ¹⁾ approx.kg	Drawing-no.
12 kV	630 A	210	325	722 44000	52,0	LI3-25188
12 kV	630 A	155	325	722 44100	47,0	LI3-25188
24 kV ^{a)}	630 A	275	475	722 55000	68,5	LI3-21452
24 kV ^{b)}	630 A	275	475	722 54000	70,5	LI3-091740
36 kV	630 A	400	570	722 64000	113,5	LI3-64409
38,5 kV	630 A	400	570	722 64907	115,0	LI3-70365

• Earthing switch below

Rated voltage	Rated current	Part-no. with mechanical interlocking	Part-no. without mechanical interlocking	p	≈ L	t	Weight ¹⁾ approx.kg	Drawing-no.
12 kV	630 A	722 44014	722 44011	210	890	445	63,0	LI3-25188
12 kV	630 A	722 44114	722 44111	155	890	445	55,5	LI3-25188
24 kV	630 A	722 54014	722 54011	275	1110	620	83,5	LI3-91740
36 kV	630 A	722 64014	722 64011	400	1345	720	130,5	LI3-64409
38,5 kV	630 A	722 64914	722 64911	400	1380	720	132,5	LI3-70365

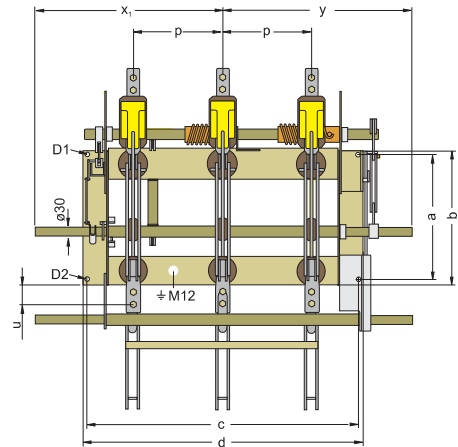
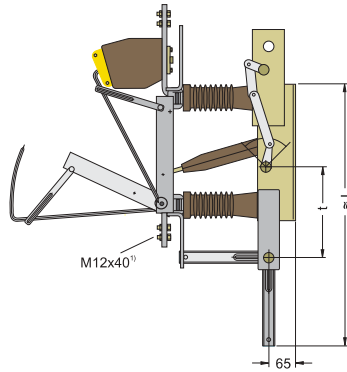
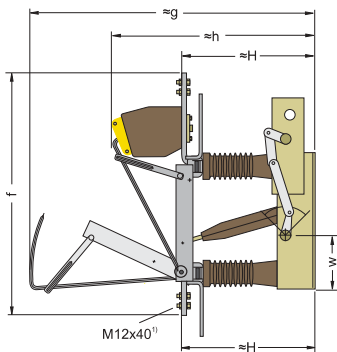
1) The weights do not include HV HBC fuses

a) short version

b) long version

DRIESCHER - Indoor Switch-Disconnecter H 22

Indoor Switch-Disconnecter H 22 EA, 1250 A



1) hexagonal screw with two span washers and nut

**Type H 22 EA
without earthing switch**

**Type H 22 EA with
earthing switch mounted below**

• Without earthing switch

Rated voltage	Rated current	Part-no.	p	a	b	c	d	f	$\approx g$	$\approx h$	$\approx H$	u	w	D ₁	D ₂	x/y	Weight approx.kg
12 kV	1250 A	722 72000	210	280	380	600	640	685	707	488	286	65	155	∅15	∅15	450	66,5
24 kV	1250 A	722 82000	275	350	380	750	790	685	789	568	366	65	155	∅15	∅15	565	85,0
36 kV	1250 A	722 92000	400	450	500	1000	1040	775	986	678	476	50	195	∅18	18x38	775	125,5

• Earthing switch below

Rated voltage	Rated current	Part-no. with mechanical interlocking	Part-no. without mechanical interlocking	p	$\approx L$	t	Weight 1) approx.kg	Drawing-no.
12 kV	1250 A	722 72014	722 72011	210	655	250	77,5	LI3-097161/1
24 kV	1250 A	722 82014	722 82011	275	735	250	98,0	LI3-097161/2
36 kV	1250 A	722 92014	722 92011	400	945	275	143,0	LI3-097161/3

**Switch-disconnector H 22 EA with earthing switch mounted on top,
please request !**

Dimensions, weights , diagrams and descriptions in the list are non-binding. Subject to change without notice.

switching • electricity • safely

**ELEKTROTECHNISCHE WERKE
FRITZ DRIESCHER & SÖHNE GMBH**

D-85366 MOOSBURG • TEL. +49 87 61 6 81-0 • FAX +49 87 61 68 11 37
http://www.driescher.com info@service@driescher.de

