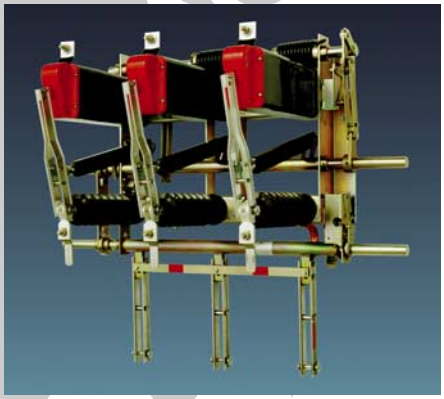
**DRIESCHER -**
**Indoor-**
**Switch-Disconnector and**
**switch-fuse combination H29**

- Rated voltage
  24 kV and 36 kV
- Rated current 630 A



H29 630 A

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# DRIESCHER - Indoor Switch-Disconnector and switch-fuse combination H 29

acc. to EN 62271-103 and EN 62271-105



## Types of Switch-Disconnectors and switch-fuse combinations

For many years DRIESCHER - indoor switch-disconnectors H29 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 maintance.

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

** see page 3, Energy storage mechanism*

- **Type H 29 EA** - with trip-free mechanism*
- **Type H 29 EA, single-pole** - with trip-free mechanism*
- **Type H 29 SEA** - with trip-free mechanism* - as well as with fuse holders mounted bellow for HV HBC fuses with pin release, 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 switch-fuse combination (Type SEA) only HV HBC fuses with pin release and a tripping impact force of min. 80 N are to be used (DRIESCHER / SIBA; refer also to 791).**

## Operating conditions

The switches are designed for normal operating conditions according to EN 62271-1 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 hights up to 1000 m are negligible due to the decreasing insulating capacity of the air. At hights 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 hight of 2000 m above sea-level, the insualting 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.**

# DRIESCHER - Indoor Switch-Disconnector H 29

## Substantial advantages

- High operating safety
- Isolating distance visible after load disconnection
- High operating frequency with minimum amount of maintenance
- Efficient and reliable arc extinction
- Convenient dimensions
- Easy operation

## Energy storage mechanism

One of the robust, low-maintenance energy storage mechanisms of type H 29 EA is mounted on the base frame on which the three switch poles are installed. Hundreds of thousands of these devices have already been used successfully in the Switch-Disconnector H 22.

The EA energy storage mechanism operates with two torsion springs for quick-make and quick-break operation with trip-free release.
Both torsion springs are tensioned when the switch is closed.
While the ON switch spring relaxes after tensioning and releases the energy for switching ON , the OFF switch spring remains tensioned and can be released by the tripping device, HV HBC fuse with pin triggering or manually for switching OFF.

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

The actuation for wall-mounting devices can take place via a linkage system operated by a lever or using any of the manual actuators given in or motorized actuator given in brochure 774, according to requirements and situation.

## Arc extinction

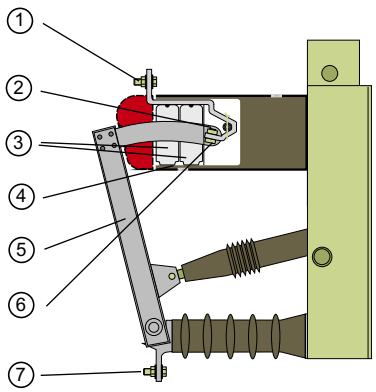
When closing the switch the switch blade (5) with the arcing tip (6) is withdrawn from the contact jaw (2). The arc which occurs is extinguished in the arcing chamber (4). This chamber is enclosed, has four sections and comprises a pressure and an expansion chamber.
In the pressure chamber two pairs of extinguishing plates (3) are forced into the path of the arc by lateral spring pressure.

① Upper connecting contact
⑦ Lower connecting contact

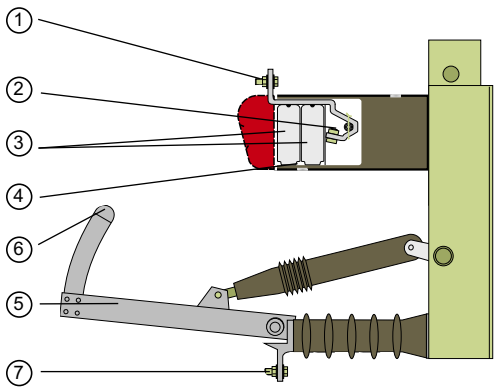
At low currents the arc is extinguished by deionising action based on the cooling effect of the walls.
Arc extinction is achieved in the higher current ranges by the arc extinguishing gases produced in the pressure chamber flowing out into the expansion chamber. Based on the rational combination of several arc quenching principles the entire current range of the load-break switch is always effectively covered.

**The arcing chambers require no maintenance.**

**ON**




**OFF**



# DRIESCHER - Indoor Switch-Disconnector H 29

## Additional equipment

**All types are available with earthing switches mounted above and below.**

In types H 29 EA the earthing switch is mounted above or below, on the switch frame (retrofitting is possible).

Type H 29 SEA are available with earthing switches integrated in the switch frame.

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

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

Auxiliary switches, Release coils or shunt releases (110 V, 230 V AC, or 24 V, 60 V, 110 V, 220 V DC) can be mounted on all switches including earthing switches.

All steel parts are galvanised and chromatised.

### Design switch-fuse combination

These switch-fuse combination acc. to EN 62271-105 consists of a function unit of switch-disconnector acc. to EN 62271-103 and current-limiting fuses acc. to EN 60282-1.

The use of the switch-fuse combination is on **transformer protection,** especially for lower and mean power.

The HV HVC fuse in combination with a switch-disconnector provides a simple solution which is very economical to procure and run.
This provides a clear-cut advantage over a circuit breaker with the associated current transformers and overcurrent time protection.
Besides this, the HV HVC fuse has a current limiting effect when short-circuits occur and reliably interrupts the fault current of the first half cycle.
These properties are advantageous for the dimensional design of the network.

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. Indoor actuators and accessories *see brochure 774.*
Drive rods and fuse tongs see *brochure 773* (system accessories).

## Technical data

**acc. to EN 62271-103**

| | | | |
|---|---|---|---|
| Rated voltage | $U_r$ | kV | 36 |
| Rated frequency | $f_r$ | Hz | 50 |
| Rated current | $I_r$ | A | 630 |
| Rated peak withstand current | $I_p$ | kA | 50[1)] |
| Rated short-time current | $I_k$ | kA | 20[1)] |
| Rated short-circuit making current | $I_{ma}$ | kA | 20 |
| Rated mainly active breaking current | $I_1$ | A | 630 |
| Rated closed-loop breaking current | $I_{2a}$ | A | 630 |
| Rated transformer off-load breaking current | $I_3$ | A | 5 |
| Rated cable-charging breaking current | $I_{4a}$ | A | 24 |
| Rated earth fault breaking current | $I_{6a}$ | A | 134 |
| Rated cable-charging breaking current under earth fault conditions | $I_{6b}$ | A | 20 |
| Electrical class | | | E1 |
| Mechanical class | | | M1 |

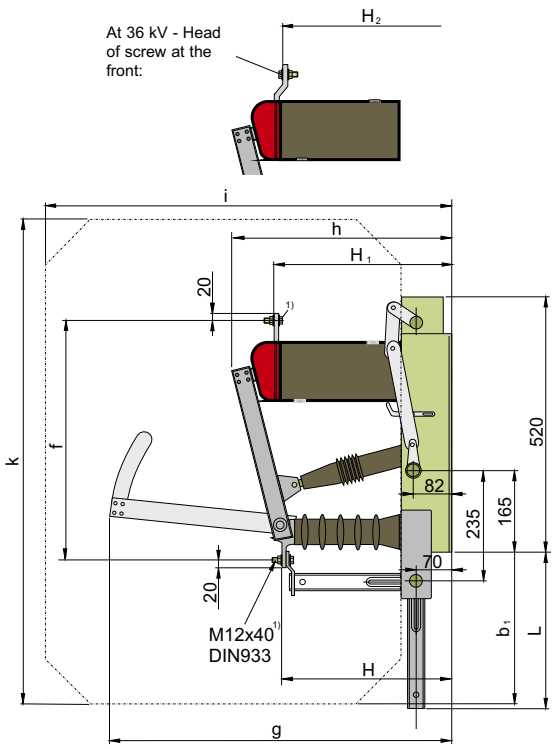
1) These values also apply to earthing switches or earthing devices

**Insulation level acc. to EN 62271-1**

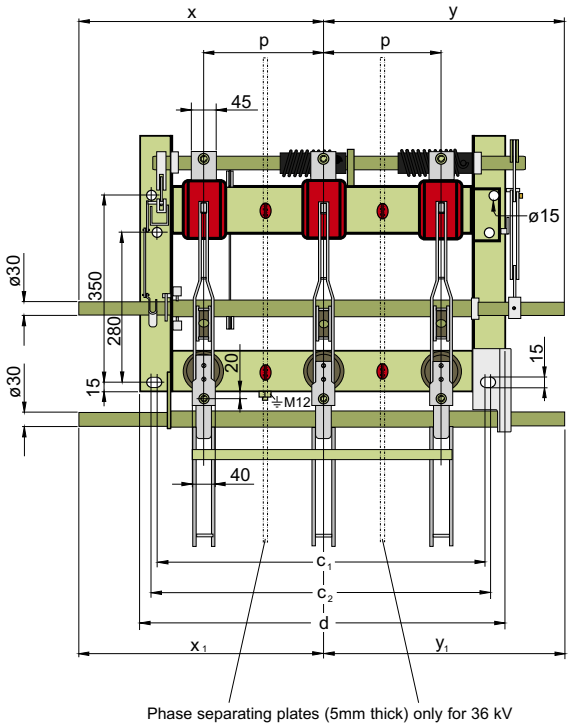
| | | | |
|---|---|---|---|
| Rated voltage | $U_r$ | kV | 36 |
| Rated lightning impulse withstand voltage 1,2/50 µs | $U_w$ | | |
| Phase - Earth | | kV | 170 |
| Phase - Phase | | kV | 170 |
| Insulating distance | | kV | 195 |
| | | | |
| Rated power frequency withstand voltage | $U_d$ | | |
| Phase - Earth | | kV | 70 |
| Phase - Phase | | kV | 70 |
| Insulating distance | | kV | 80 |

# DRIESCHER - Indoor Switch-Disconnector H 29

## Switch-Disconnector H 29 EA, 630 A




1) Hexagon screw with nut, washer and spring washer




Phase separating plates (5mm thick) only for 36 kV

### Type H 29 EA with earthing switch mounted below

**Earthing switch with or without mechanical interlocking**

**• without earthing switch**

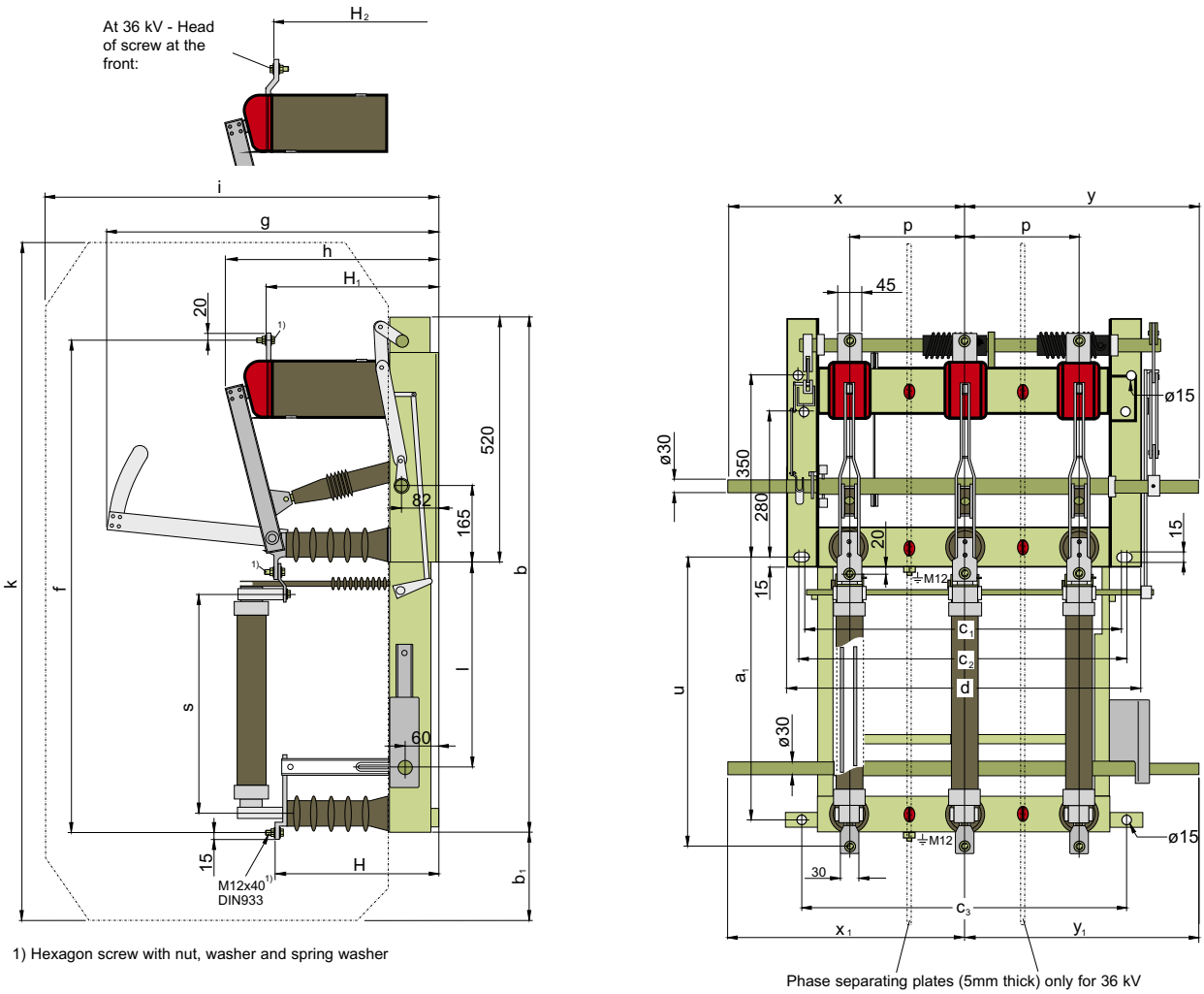
| Rated voltage | Rated current | Part-No.: | p | $c_1$ | $c_2$ | d | f | ≈g | ≈h | ≈H | ≈$H_1$ | ≈$H_2$ | ≈i | k | x/y | Weight approx. kg | Drawing-No.: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 kV | 630 A | 729 62200 | 275 | 730 | 750 | 790 | 502 | 780 | 550 | 445 | - | 439 | 950 | 1060 | 435 | 74,0 | LG3-038742 |

**• earthing switch mounted below**

| Rated voltage | Rated current | Part-No. with mechanical interlocking | Part-No. without mechanical interlocking | p | $b_1$ | ≈L | $x_1/y_1$ | Weight approx. kg | Drawing-No.: |
|---|---|---|---|---|---|---|---|---|---|
| 36 kV | 630 A | 729 62214 | 729 62211 | 275 | 315 | 436 | 435 | 90,0 | LG3-038742 |

# DRIESCHER - Indoor Switch-Disconnector H 29

## Switch-fuse combination H 29 SEA




1) Hexagon screw with nut, washer and spring washer

### Type H 29 SEA with earthing switch mounted below
### und fuse holders for HV HBC fuses up to 125 A rated current

**• without earthing switch**

| Rated voltage | Rated current 3) | p | $a_1$ | b | $b_1$ | $c_1$ | $c_2$ | $c_3$ | d | f | ≈ g | ≈ h | ≈ $H_1$ | ≈ $H_2$ | i | k |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 kV | 630/125 A | 275 | 655 | 1200 | 310 | 730 | 750 | 750 | 790 | 1177 | 780 | 550 | 430 | 439 | 950 | 1735 |

| Rated voltage | Rated current 3) | p | s | u | x/y | Part-No.: | Weight 2) approx. kg | Drawing-No.: |
|---|---|---|---|---|---|---|---|---|
| 36 kV | 630/125 A | 275 | 570 | 710 | 435 | 729 64200 | 113,5 | LG3-26622 |

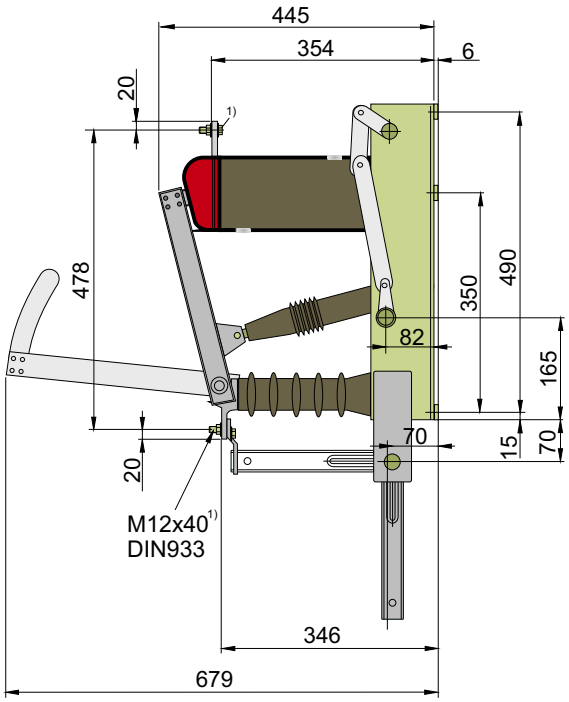
**• earthing switch mounted below**

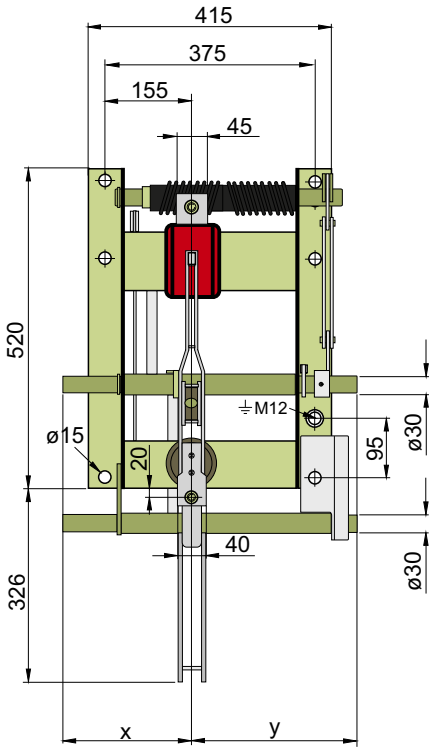
| Rated voltage | Rated current 3) | p | l | $x_1/y_1$ | Part-No. with mechanical interlocking | Part-No. without mechanical interlocking | Weight 2) approx. kg | Drawing-No.: |
|---|---|---|---|---|---|---|---|---|
| 36 kV | 630/125 A | 275 | 530 | 650 | 729 64014 | 729 64000 | 132,5 | LG3-26622 |

2) Weights without HV HBC fuses
3) Rated current of the fuse holder 125 A

# DRIESCHER - Indoor Switch-Disconnector H 29

## Switch-Disconnector H 29 EA - single-pole, 630 A




1) Hexagon screw with nut, washer and spring washer
2) Technical data on request

### Type H 29 EA[2] single-pole, with earthing switch mounted below

**(Motor drive on the left or right side possible)**

**• without earthing switch**

| Rated voltage | Rated current | Part-No.: | Weight approx. kg | Drawing-No.: |
|---|---|---|---|---|
| 24 kV | 630 A | 729 52904 | 29 | LG4-49819 |

**• earthing switch mounted below**

| Rated voltage | Rated current | Part-No. with mechanical interlocking | Weight approx. kg | Drawing-No.: |
|---|---|---|---|---|
| 24 kV | 630 A | 729 52903 | 34 | LG4-49819 |

**Our range of products includes:**

**Medium-voltage systems**

- Single-busbar and duplicate-busbar switchgear
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- Compact switchgear assemblies
- Customer-specific models
- Industrial switchgear
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- Indoor circuit breakers (low oil content and vacuum)
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