Applications

HV HRC (high-voltage high rupturing capacity) fuses are used for short circuit protection in high-voltage switchgear for the 50 to 60 Hz frequency range

- Distribution transformers up to 2000 kVA
- High-voltage motors up to 3 MW
- Capacitors up to1200 kvar
- MV voltage transformers
- Cable feeders

Safe with Siemens fuses

- Experience with this model series since more than 30 years
- Ageing resistance, because the melting conductors are of pure silber
- Low power loss (important for encapsulated switch gears)
- Striker pin with "thermal protection behaviour"
- Absolute sealing due to "Magneform process"
- Manufactured according to ISO 9001
- Small switching overvoltages
- Suitable for indoor and outdoor application

Technical characteristics

HV HRC Fuses 3GD are specially suitable for the short circuit protection of supply system units.

Properties:

- Short circuit currents do not rise to their peak levels
- By virtue of the very short pre-arcing times t_s< 5 ms, even short circuit currents of more than 20 to 25 times the rated current of the fuse are cut off
- The current limiting effect of HV HRC fuses enables the dimensioning of apparatus with lower short circuit rating (e.g. switching devices, instrument transformers, cabel)

3GD High Voltage HRC fuse links

HV HRC-Fuse link 3GD

DIN/VDE 0670
- Part 4
- Part 401
- Part 402

DIN 43 625
IEC 282

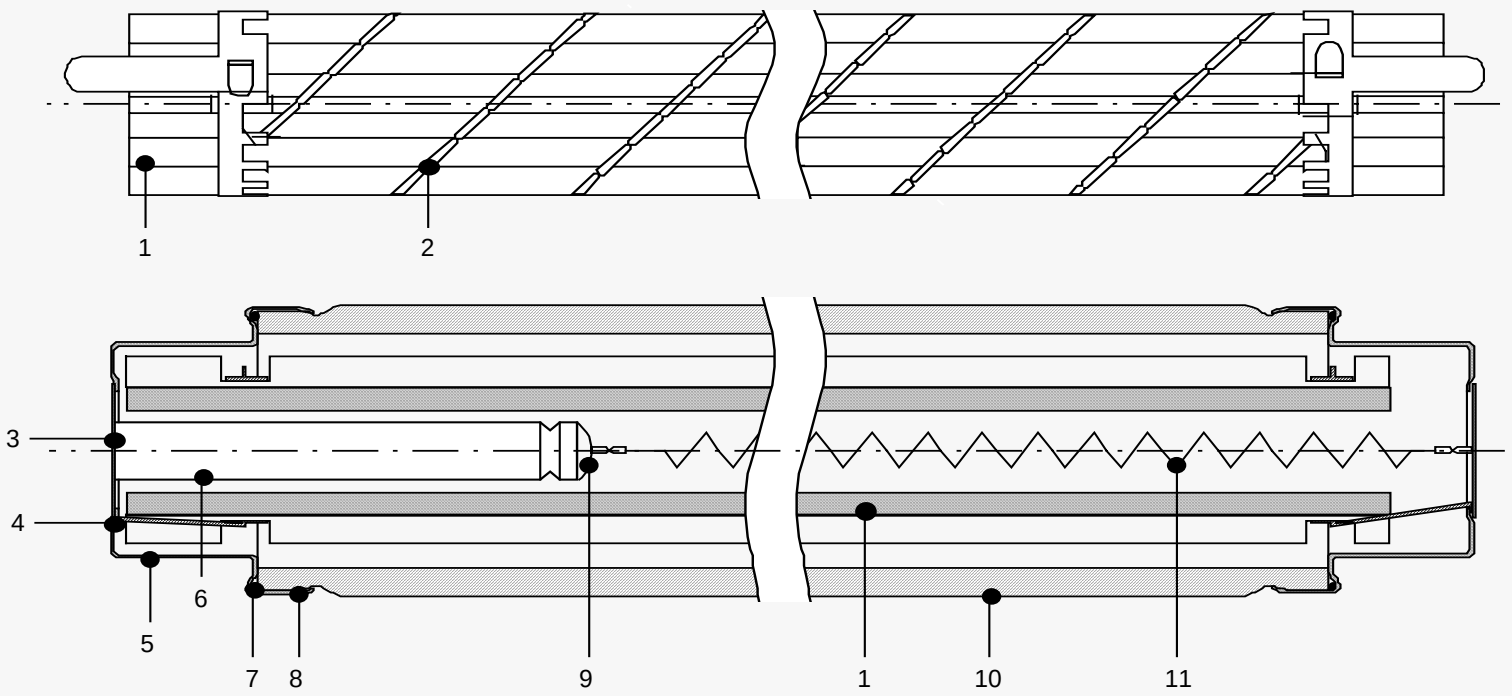
Rated voltage (kV)	Rated current (A)
3.6 / 7.2	up to 250
12	up to 160
24	up to 100
36	up to 40

3GD High Voltage HRC fuse links

Benefits

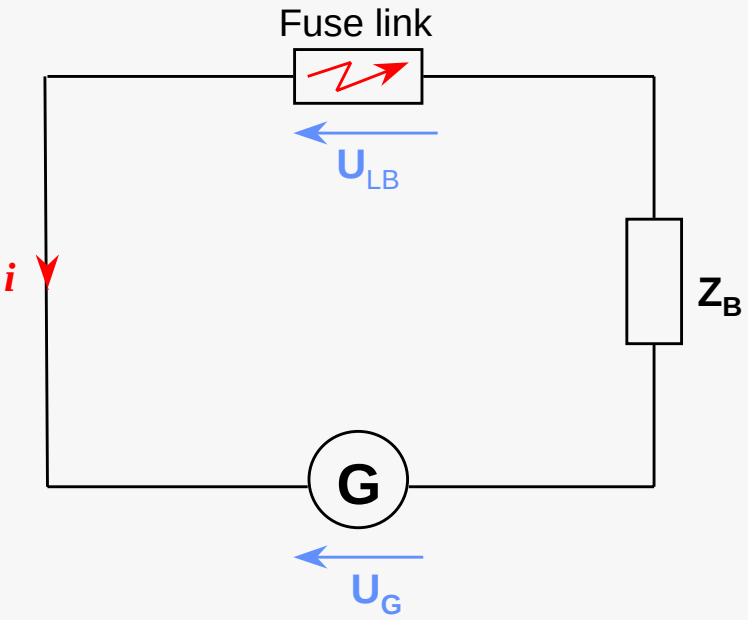
No ageing	→	Silver melting conductors
Tightness	→	Magneform process - the most reliable closing technique to seal the housing - double sealing of the striker pin system - special plastic foil - also suitable for outdoor applications
Thermal striker pin	→	Thermal overload protection of the switch-fuse combination
Low power losses	→	Due to optimized melting conductor construction
More than 30 years experience	→	High reliability

Construction of a 3GD fuse link



1	Internal tube	5	End cap	9	Sealing compound
2	Main melting elements	6	Striker pin	10	Ceramic tube
3	Cover	7	Sealing ring	11	Auxiliary element
4	Contacting straps	8	Magneformpress		

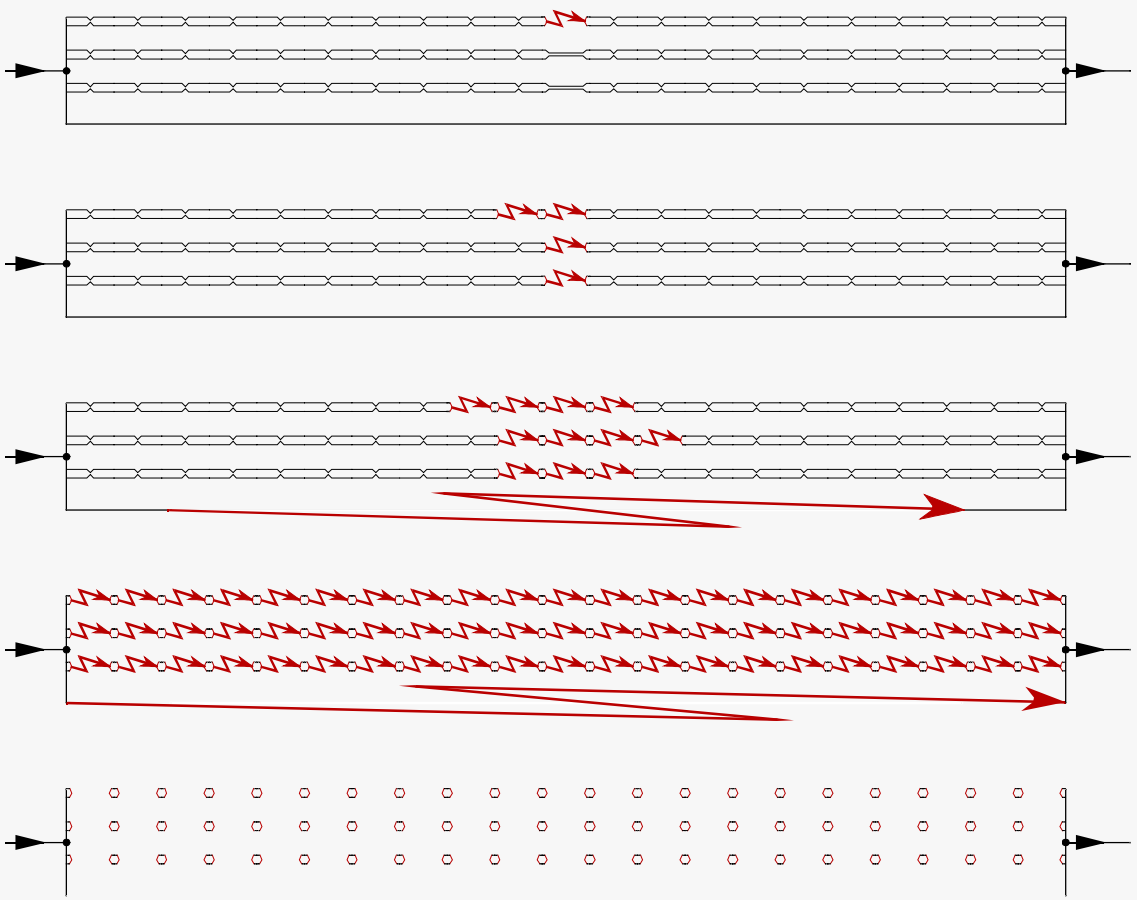
Switching off with a fuse link



- Fault current ***i*** flows
- Melting conductor heats up
- Melting conductor evaporates
- Arc ignites
- Arc-voltage increases with the number of partial arcs until the arc voltage becomes higher than the source voltage U_G
- Internal arc in the fuse extinguishes

U_{LB} = Arc voltage
U_G = Source voltage

Operation



Short circuit current
begins to flow

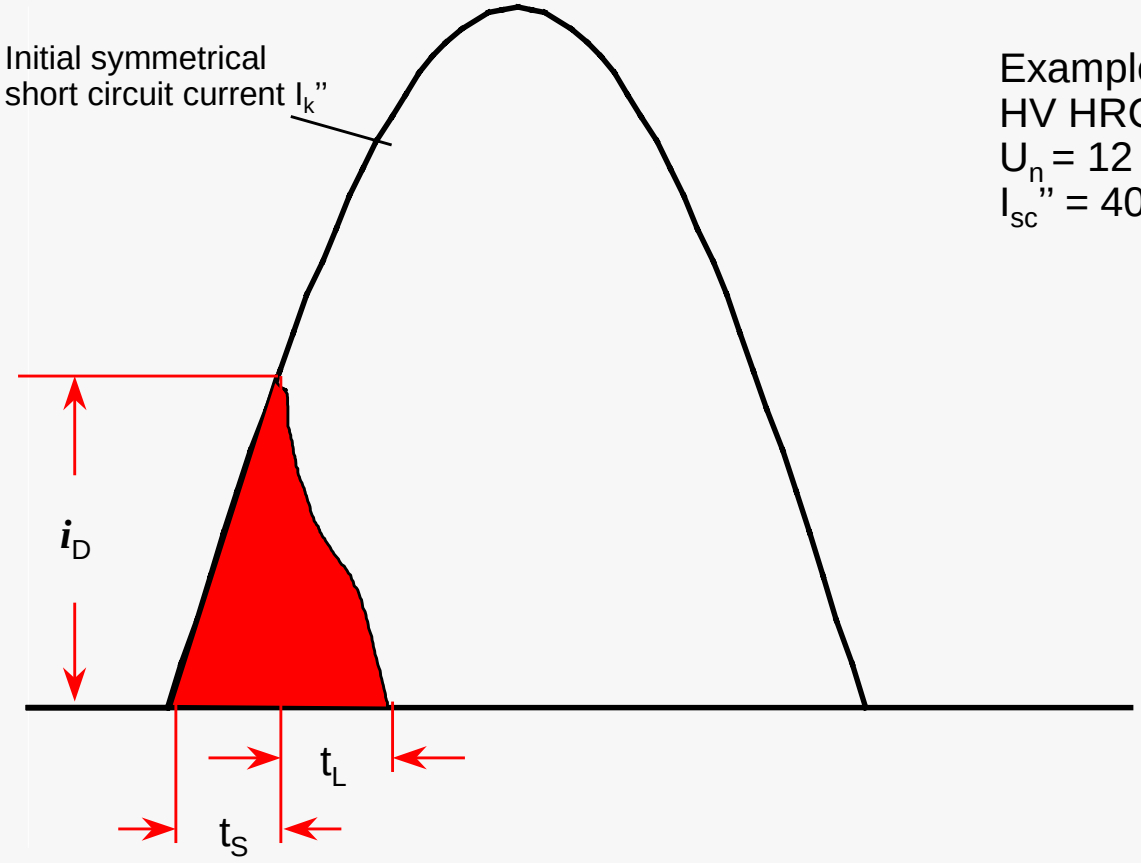
Melting of all main
melting conductors

Melting of the secondary
fusible element
Release of the striker pin

Formation of the partial arcs
necessary for extiction

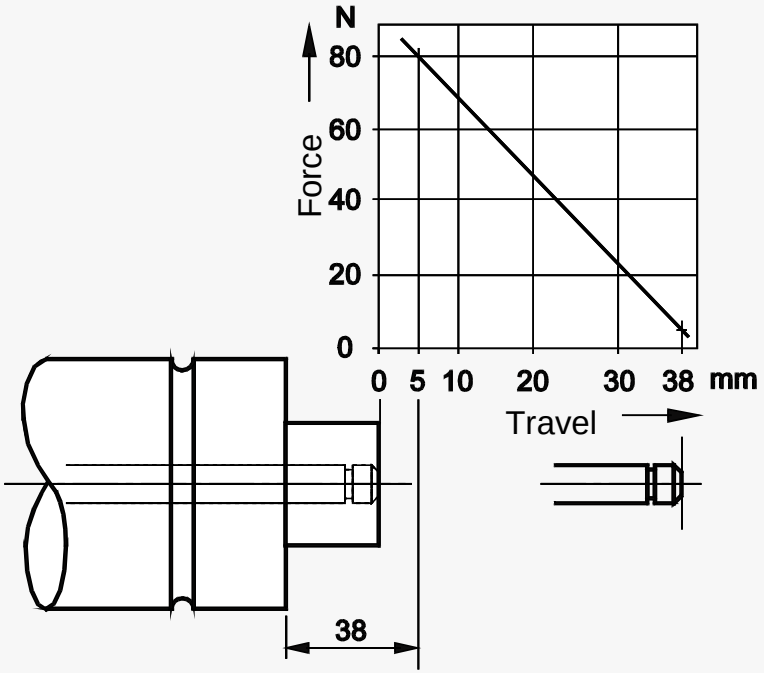
Quenching of the short circuit

Short-circuit limitation as current rises



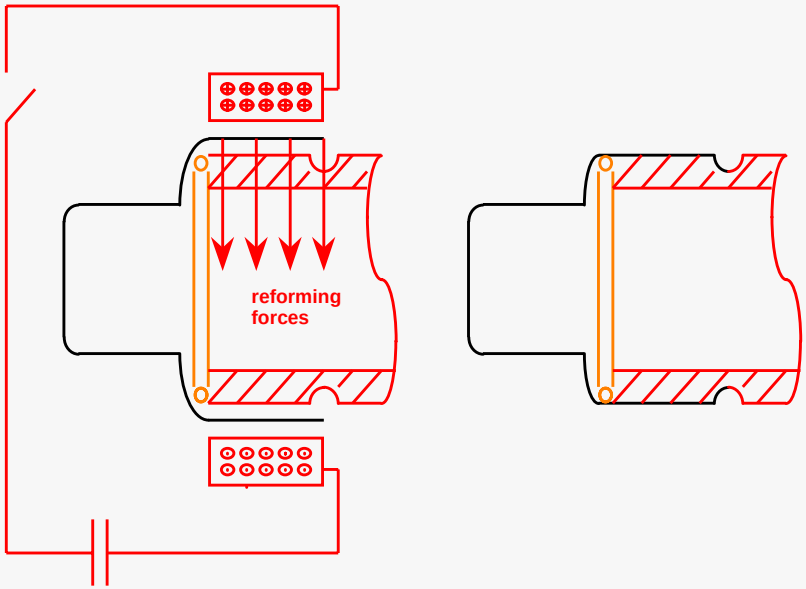
Example:
HV HRC Fuse 3GD 1208-2B
U_n = 12 kV, I_n = 40 A,
I_{sc}" = 40 kA r.m.s., i_D = 7.5 kA

Duties of the striker pin



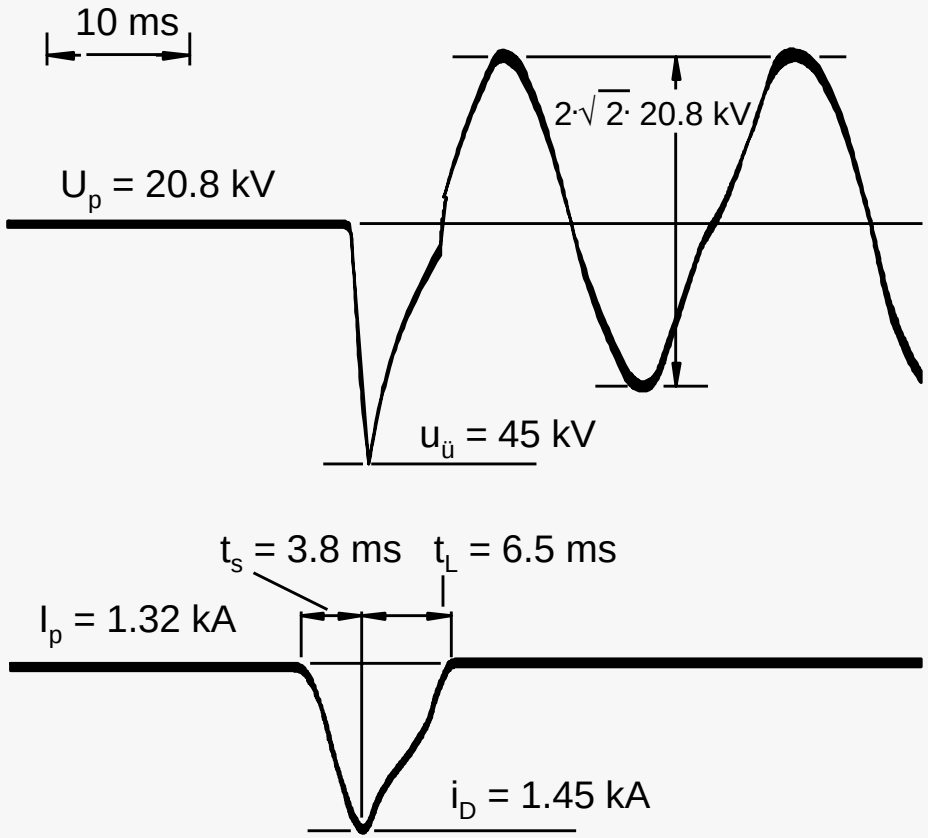
- Tripping of the assigned switching device (switching disconnector, contactor, switch)
- Signal, when the fuse link has blown
- Releases when the fuse link is overloaded
- Release of the striker pin of the 3GD fuse link prevents a thermal destruction of the fuse when using a switch-fuse combination, in the event of fault currents $>I_n$ and $<I_{min}$

Magneform process guaranties absolute sealing !



With a magnetic pressing process we guarantee resistance to ageing and complete sealing against penetration of humidity for the whole lifetime

Overvoltages



U_p : Test voltage

$u_ü$: Switching overvoltage

I_p : Test current (RMS-value)

i_D : Cut-off current

t_s : Pre-arcing time

t_L : Arc extinction time