

But Contact Design, Bolted Bus, 6kA to 72kA

The Watteredge But Contact Type High current disconnect switch is an OFF-Load switch that utilizes a proprietary sealed silver contact assembly. This switch design is available in single and back to back configurations for both AC and DC plant installations. The switch is self supporting and can be installed in aluminum or copper bus systems without additional support. The disconnect is supported by the bus bar system. An integrated flexible terminal allows for the switch operation and also can be used to compensate for thermal expansion in the bus bar system.

Features:

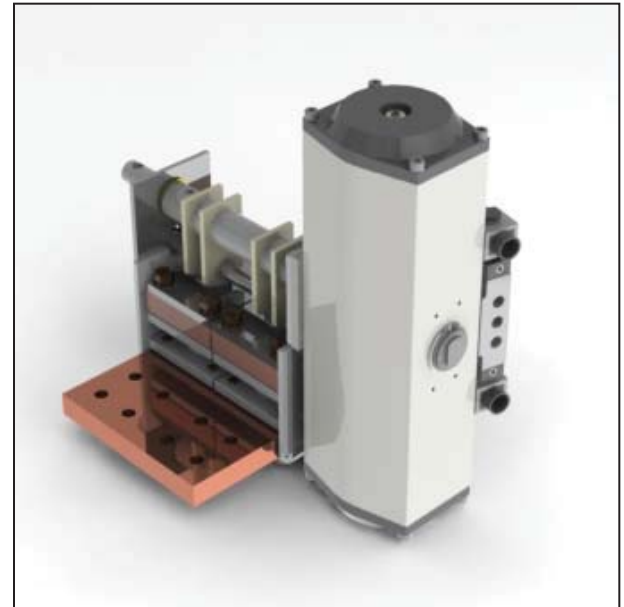
- Mounting: all mounting orientations possible
- DC or AC applications
- Working voltage up to 1000V
- Manual, Electric or Pneumatic drive
- Electromechanical interlock, Kirk key interlock
- Auxiliary limit switches

Options/Accessories:

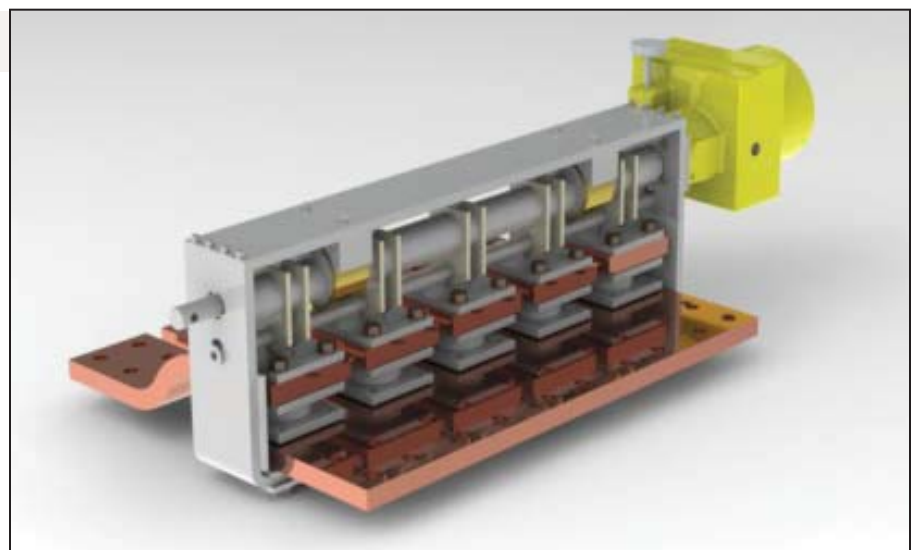
- RTD temperature monitoring
- Voltage monitoring
- Pre-arcing contacts for back EMF
- Control box
- Pneumatic protection systems

Applications:

- Single pole
- Multiple pole
- Change over (Polarity reversing)



*DC Disconnect Type DCS-S-12-P
12kA with pneumatic Actuator and solenoid valve.*



*DC Disconnect Type DCS-S-30-E
30kA with electric Actuator*

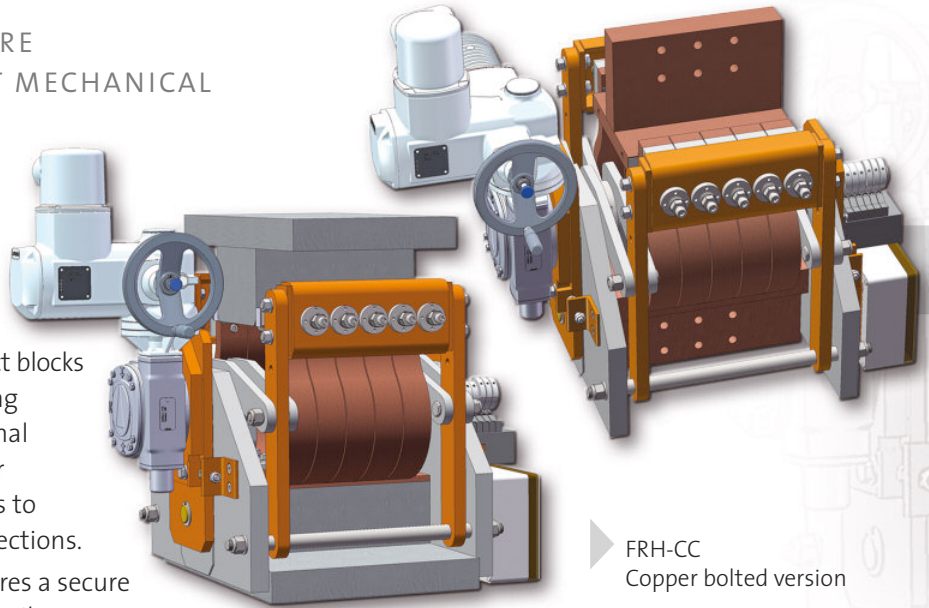
FLOHE DC HIGH CURRENT ISOLATOR

THE MODULAR STRUCTURE CORRESPONDS TO THE HIGHEST MECHANICAL AND ELECTRICAL STANDARDS.

Type FRH has a visible isolating distance and regardless of the position, can be vertically or horizontally welded or screwed into the busbar system.

The isolator has incoming and outgoing aluminium contact blocks or copper contact blocks which are provided for welding or screwing to the existing busbar system. An additional wall support is not necessary. The isolator is supported by the busbar package. Shifts to the busbars are compensated in three directions.

A flexible spring adjustment system ensures a secure electrical and mechanical contact and the silver plated main contacts ensure a low voltage drop.



FRH-CC
Copper bolted version

FRH TYPES CAN BE SUPPLIED IN ALL NEEDED VERSIONS

- Manual / motor pneumatic
- Remote drive / emergency drive
- Panic switch function
- Auxiliary switch for internal and external control
- Locking systems: mechanical or electrical
- Terminal box: local / or remote control box
- Temperature monitoring

TECHNICAL DATA	Standard units
max. nominal current	400 kA
max. nominal voltage	3000 V
Peak short circuit current	10x nominal current 1 s
Insulation voltage	5000 V DC
max. ambient temperature	60°C
max. temperatur rise	max. ambient temp. +40°C
Operating time ON OFF	motor less 20s / pneumatic less 1s
Traversing in (x/y/z) direction	± 20 mm
mechanical lifespan	5000 operations
Custom design upon request	

Type	Current [kA]	Assembling	Dimension													
			Contact adapter A			Contact adapter B			C	D	E	F		G		H
			A1 standard min. [mm]	A2 standard [mm]	A3 standard min. [mm]	B1 standard min. [mm]	B2 standard [mm]	B3 standard min. [mm]	standard [mm]	standard [mm]	standard [mm]	closed ON [mm]	open OFF approx. [mm]	closed ON approx. [mm]	open OFF approx. [mm]	standard [mm]
FRH-CC	15	1x15	180	50	190	260	50	167	400	475	783	226	326	559	646	617
FRH-CC	20	1x20	230	50	190	310	50	167	450	475	833	226	326	559	646	617
FRH-CC	25	1x25	280	50	190	360	50	167	500	475	883	226	326	559	646	617
FRH-CC	30	1x30	330	50	190	410	50	167	550	475	933	226	326	559	646	617
FRH-CC	35	1x35	380	50	190	460	50	167	600	475	983	226	326	559	646	617
FRH-CC	40	1x40	430	50	190	510	50	167	650	475	1033	226	326	559	646	617
FRH-CC	45	1x45	480	50	190	560	50	167	700	475	1083	226	326	559	646	617
FRH-CC	50	1x50	530	50	190	610	50	167	750	475	1133	226	326	559	646	617
FRH-CC	55	1x55	580	50	190	660	50	167	800	475	1183	226	326	559	646	617
FRH-CC	60	1x60	630	50	190	710	50	167	850	475	1233	226	326	559	646	617
FRH-CC	70	1x70	730	50	190	810	50	167	950	475	1333	226	326	559	646	617
FRH-CC	80	1x80	830	50	190	910	50	167	1050	475	1433	226	326	559	646	617
FRH-CC	90	1x90	930	50	190	1010	50	167	1150	475	1533	226	326	559	646	617
FRH-CC	100	1x100	1030	50	190	1110	50	167	1250	475	1633	226	326	559	646	617
FRH-CC	110	1x110	1130	50	190	1210	50	167	1350	475	1733	226	326	559	646	617
FRH-CC	120	1x120	1230	50	190	1310	50	167	1450	475	1833	226	326	559	646	617
FRH-CC	130	2x65	1470	50	190	1550	50	167	1690	475	2073	226	326	559	646	617
FRH-CC	140	2x70	1570	50	190	1650	50	167	1790	475	2173	226	326	559	646	617
FRH-CC	150	2x75	1670	50	190	1750	50	167	1890	475	2273	226	326	559	646	617
FRH-CC	160	2x80	1770	50	190	1850	50	167	1990	475	2373	226	326	559	646	617
FRH-CC	180	2x90	1970	50	190	2050	50	167	2190	475	2573	226	326	559	646	617
FRH-CC	200	2x100	2170	50	190	2250	50	167	2390	475	2773	226	326	559	646	617

Other designs upon request · E + G + H = external dimension · all engine-driven designs with manual panic switch function

TYPE FRH

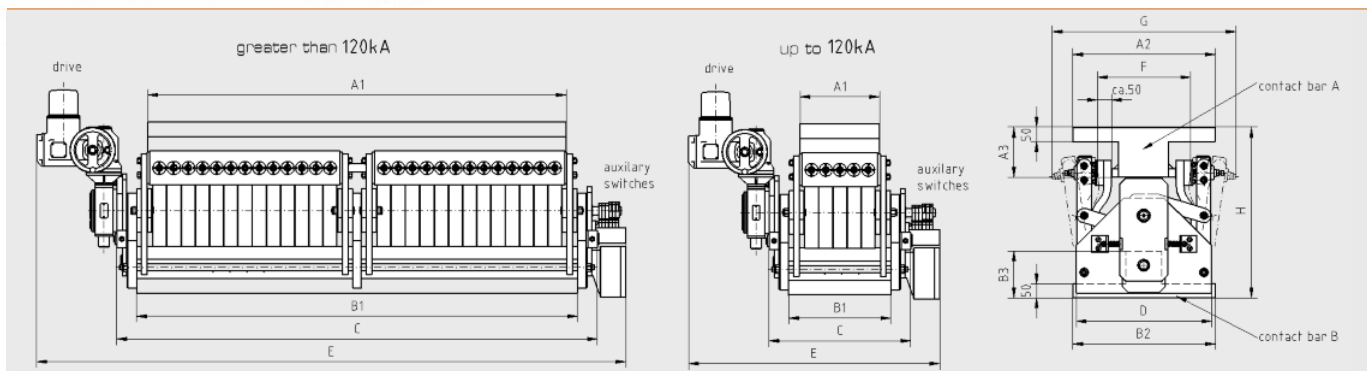
DC HIGH CURRENT ISOLATOR FRH 5 kA · 400 kA · SINGLE-DOUBLEPOLE

FOR CURRENTLESS SWITCHING IN DC SYSTEMS
VDE 0110 GROUP C · EN 60947-3 · IEC 60077-1

FLOHE DC High current Isolator FRH is universally as...

- **FRH-AA**
Aluminium
welded version
- **FRH-CC**
Copper
bolted version
- **FRH-AC**
Combination
Al/Cu
- **FRH-MO**
Mobile for
graphite plants

▶▶ FRH-AA ◀◀



Type	Current [kA]	Assembling	Dimension													
			Contact adapter A			Contact adapter B			Dimension							
			A1 standard min. [mm]	A2 standard [mm]	A3 standard min. [mm]	B1 standard min. [mm]	B2 standard [mm]	B3 standard min. [mm]	C standard [mm]	D standard [mm]	E standard [mm]	F closed ON [mm]	F open OFF approx. [mm]	G closed ON approx. [mm]	G open OFF approx. [mm]	H standard [mm]
FRH-AA	15	1x 15	180	500	175	260	500	165	400	475	783	226	326	559	646	600
FRH-AA	20	1x 20	230	500	175	310	500	165	450	475	833	226	326	559	646	600
FRH-AA	25	1x 25	280	500	175	360	500	165	500	475	883	226	326	559	646	600
FRH-AA	30	1x 30	330	500	175	410	500	165	550	475	933	226	326	559	646	600
FRH-AA	35	1x 35	380	500	175	460	500	165	600	475	983	226	326	559	646	600
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FRH-AA	45	1x 45	480	500	175	560	500	165	700	475	1083	226	326	559	646	600
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FRH-AA	150	2x 75	1670	500	175	1750	500	165	1890	475	2273	226	326	559	646	600
FRH-AA	160	2x 80	1770	500	175	1850	500	165	1990	475	2373	226	326	559	646	600
FRH-AA	180	2x 90	1970	500	175	2050	500	165	2190	475	2573	226	326	559	646	600
FRH-AA	200	2x 100	2170	500	175	2250	500	165	2390	475	2773	226	326	559	646	600

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