

# Product information

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## Three phase 400V dv/dt reactor FFR-DT

Herewith we would like to inform you about the availability of the new FFR-DT dv/dt reactor series from Mitsubishi Electric Europe.

The new dv/dt reactor options will be usable for all 400V Inverters in the current range from 10A to 1920A, and are ready to order in our system.

Main features of the FFR-DT filters are:

- Efficient reduction of high output voltage dv/dt from IGBT motor drives
- Reduction of motor temperature
- Significantly increased service life of electric motors by protection of motor coil insulation from premature aging and destruction
- Reduced Inverter pulse load
- Output Filter with low impedance, ideal for processes requiring exceptional precision and reproducibility of movements
- Compact and economic open frame design

Typical applications for FFR-DT filters are:

- Motor drive applications with short motor cables
- Closed loop vector drives

The dv/dt-filter FFR-DT is applicable at a carrier frequency between 2kHz and 16kHz. When you are using the FFR-DT at a high carrier frequency it has no influence on the power losses in the filter, but on the maximum motor cable length. If you want to use motor cables longer than 20m you have to reduce the carrier frequency according to the diagram below.

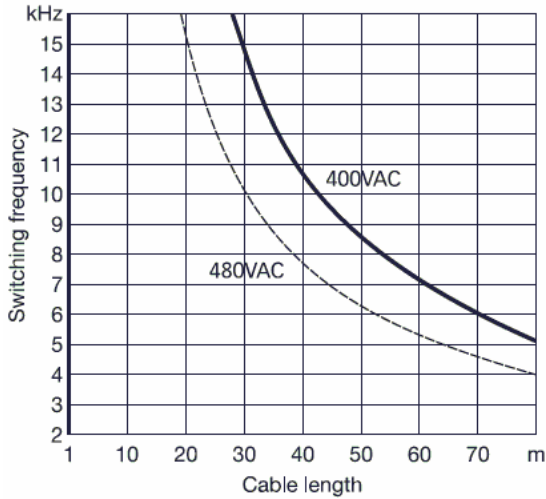
When you are using the FFR-DT with a FR-A/F700 and 30m motor cable length, the dv/dt is reduced to 720V/ $\mu$ s.

For your information please find below the technical specifications, including the SAP article numbers:

Type	Article No.	Typical power loss [W]	Total weight [kg]	Dimensions [mm]		
				W	H	D
FFR-DT-10A-SS1	209755	25	1,2	100	120	65
FFR-DT-25A-SS1	209756	45	2,5	125	140	80
FFR-DT-47A-SS1	209757	60	6,1	155	195	110
FFR-DT-93A-SS1	209758	75	7,4	190	240	100
FFR-DT-124A-SS1	209759	110	8,2	190	170	150
FFR-DT-182A-SS1	209760	140	16	210	185	160
FFR-DT-330A-SS1	209761	240	32	240	220	240
FFR-DT-500A-SS1	209762	340	35	240	325	220
FFR-DT-610A-SS1	209763	380	37	240	325	230
FFR-DT-683A-SS1	209764	410	38	240	325	230
FFR-DT-790A-SS1	209765	590	43	300	355	218
FFR-DT-1100A-SS1	209766	760	66	360	380	250
FFR-DT-1500A-SS1	209767	1100	97*	360*	*	250*
FFR-DT-1920A-SS1	209768	1200	105*	360*	*	250*

\*under reserve, in technical clarification

Maximum operating voltage:	3 x 500V/288VAC
Motor frequency:	60Hz max.
Switching frequency:	2 to 16kHz
Rated currents:	4 to 1920A @ 40°C
Motor cable length:	70m shielded, 100m unshielded (depending on carrier frequency see table below)
Impedance (uk):	8% @ 400VAC, 50Hz and rated current
Typical dv/dt reduction:	≤ factor 5
High potential test voltage:	P -> E 3000VAC for 3 sec. P -> P 3000VAC for 3 sec.
Protection category:	IP00
Overload capability:	200% for at switch on for 30 sec. 150% for 60 sec. once per hour
Temperature range:	-25°C to +100°C
Insulation class:	T40/B (130°C) ≤ 110A T40/F (155°C) > 110A
Flammability corresponding to:	UL 94V-2 or better
Design corresponding to:	EN 61558-2-20 (VDE 0570-2-20)
MTBF @ 40°C/400V:	> 200.000 hours



Product type Mitsubishi	SAP code	In @ 40°C [A]	In @ 50°C [A]	A740 *1	F740	E740	E540	D740	S540
FFR-DT-10A-SS1	209755	10	9	FR-A740-00023-EC FR-A740-00038-EC FR-A740-00052-EC FR-A740-00083-EC	FR-F740-00023-EC FR-F740-00038-EC FR-F740-00052-EC FR-F740-00083-EC	FR-E740-016-EC FR-E740-026-EC FR-E740-040-EC FR-E740-060-EC	FR-E540-0,4K FR-E540-0,75K FR-E540-1,5K FR-E540-2,2K FR-E540-3,7K	FR-D740-012-EC FR-D740-022-EC FR-D740-036-EC FR-D740-050-EC FR-D740-080-EC	FR-S540-0,4K FR-S540-0,75K FR-S540-1,5K FR-S540-2,2K FR-S540-3,7K
FFR-DT-25A-SS1	209756	25	22,5	FR-A740-00126-EC FR-A740-00170-EC FR-A740-00250-EC	FR-F740-00126-EC FR-F740-00170-EC FR-F740-00250-EC	FR-E740-095-EC FR-E740-120-EC FR-E740-170-EC	FR-E540-5,5K FR-E540-7,5K	FR-D740-120-EC FR-D740-160-EC	
FFR-DT-47A-SS1	209757	47	42,3	FR-A740-00310-EC FR-A740-00380-EC FR-A740-00470-EC	FR-F740-00310-EC FR-F740-00380-EC FR-F740-00470-EC	FR-E740-230-EC FR-E740-300-EC			
FFR-DT-93A-SS1	209758	93	81	FR-A740-00620-EC FR-A740-00770-EC FR-A740-00930-EC	FR-F740-00620-EC FR-F740-00770-EC FR-F740-00930-EC				
FFR-DT-124A-SS1	209759	124	111,6	FR-A740-01160-EC FR-A740-01800-EC	FR-F740-01160-EC				
FFR-DT-182A-SS1	209760	182	163,8	FR-A740-02160-EC	FR-F740-01800-EC				
FFR-DT-330A-SS1	209761	330	297	FR-A740-02600-EC FR-A740-03250-EC FR-A740-03610-EC	FR-F740-02160-EC FR-F740-02600-EC FR-F740-03250-EC				
FFR-DT-500A-SS1	209762	500	450	FR-A740-04320-EC FR-A740-04810-EC FR-A740-05470-EC	FR-F740-03610-EC FR-F740-04320-EC FR-F740-04810-EC				
FFR-DT-610A-SS1	209763	610	540	FR-A740-06100-EC	FR-F740-05470-EC FR-F740-06100-EC				
FFR-DT-683A-SS1	209764	683	612	FR-A740-06830-EC FR-A740-07700-EC	FR-F740-06830-EC				
FFR-DT-790A-SS1	209765	790	711	FR-A740-08660-EC	FR-F740-07700-EC				
FFR-DT-1100A-SS1	209766	1100	990	FR-A740-09620-EC FR-A740-10940-EC FR-A740-12120-EC	FR-F740-08660-EC FR-F740-09620-EC FR-F740-10940-EC				
FFR-DT-1500A-SS1	209767	1500	1350		FR-F740-12120-EC				
FFR-DT-1920A-SS1	209768	1920	1728						

\*1 = Suitable filters for 200% overload (ND). If you need lower overload, which means higher current, choose one size bigger filter.