

FR-F700 – The New Power-saving Inverter

The Action Programme for Your Drive Systems

The truly fantastic specifications of the FR-F700 for pump and fan applications make this new frequency inverter from Mitsubishi Electric an absolute must for your drive systems.

Extended power-saving functions

The FR-F700 is the latest addition to Mitsubishi Electric's successful frequency inverter range. This brand-new development shines with exceptional power-saving capabilities - particularly for pump and fan applications. Crucially, it achieves the most drastic energy savings in the important low speed range and during the acceleration and braking phases. For example, at a starting frequency of 35Hz this inverter achieves a power saving of 57% compared to conventional solutions.

But that's not all - the pioneering OEC (Optimum Excitation Control) technology developed by Mitsubishi Electric achieves additional power savings of

around 10% by ensuring that the optimum flux is delivered to the motor at all times. This guarantees maximum motor effectiveness at maximum efficiency.

The power saving ratio can be displayed on the FR-F700's control unit or output via the analog outputs or the network links.

Anti-windmill function

When the system is started up, for example after a power failure, the FR-F700 can register the motor's current speed and direction of rotation and synchronise itself accordingly. If the drive system is already turning, for example because of a draft on a fan, this prevents it from switching off automatically due to overcurrent when the inverter cuts in. This "motor

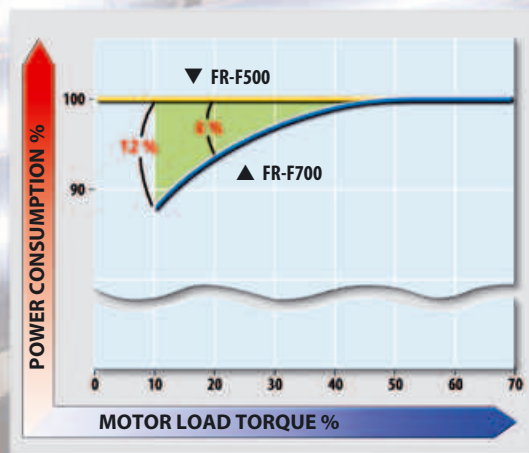
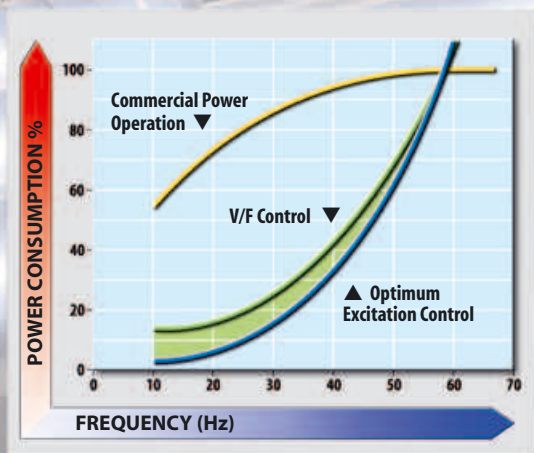
catching", which works in both directions, saves power and time because the load no longer needs to be stopped before the inverter can be activated.

Long service life and simplified maintenance

Many intelligent design features and new components (e.g. fans and capacitors) increase the service life of the FR-F700 to more than 10 years. And the integrated self-diagnostics system reliably prevents unexpected drive system failures by automatically displaying a warning message when the maximum service life has been reached.

Highlights of the new FR-F700:

- Output range from 0.75kW - 560kW
- Power supply range up to 500V (from 75kW)
- Integrated EMC filter
- Integrated brake transistor up to 30kW
- IP54 protection rating
- Extended power-saving function
- Remote I/O
- Automatic restart after power failures
- PTC input
- Extended PID function
- Simple Magnetic Flux Vector Control
- Long service life
- Conforms to international CE, UL, cUL standards
- Anti-windmill function



◀◀ Fan characteristic
 ◀ Power saving during acceleration and braking phases

The new FR-F700 - Power savings potential of over 60%



The FR-F700 supports the following networks:

- Profibus/DP
- DeviceNet
- CC-Link
- LON Works
- USB 1.1
- RS-485 and Modbus RTU (Standard)

Power saving performance display

The power saving effects can be displayed on the control unit with several different formats and values in kW.

- Current value in: kWh, % or Euros
- Average value in: kWh, % or Euros
- Annual value in: kWh or %

Model	120% overload capacity*		150% overload capacity**		Dimensions W x H x D in mm
	Rated current (A)	Rated motor capacity (kW)	Rated current (A)	Rated motor capacity (kW)	
FR-F740-00023-EC	2.3	0.75	2.1	0.75	150 x 260 x 140
FR-F740-00038-EC	3.8	1.5	3.5	1.5	150 x 260 x 140
FR-F740-00052-EC	5.2	2.2	4.8	2.2	150 x 260 x 140
FR-F740-00083-EC	8.3	3.7	7.6	3.7	150 x 260 x 140
FR-F740-00126-EC	12.6	5.5	11.5	5.5	150 x 260 x 140
FR-F740-00170-EC	17	7.5	16	7.5	220 x 260 x 170
FR-F740-00250-EC	25	11	23	11	220 x 260 x 170
FR-F740-00310-EC	31	15	29	15	220 x 300 x 190
FR-F740-00380-EC	38	18.5	35	18.5	220 x 300 x 190
FR-F740-00470-EC	47	22	43	22	250 x 400 x 190
FR-F740-00620-EC	62	30	57	30	250 x 400 x 190
FR-F740-00770-EC	77	37	70	37	325 x 550 x 195
FR-F740-00930-EC	93	45	85	45	435 x 550 x 250
FR-F740-01160-EC	116	55	106	55	435 x 550 x 250
FR-F740-01800-EC	180	90	144	75	435 x 550 x 250
FR-F740-02160-EC	216	110	180	90	465 x 620 x 300
FR-F740-02600-EC	260	132	216	110	465 x 620 x 300
FR-F740-03250-EC	325	160	260	132	465 x 690 x 360
FR-F740-03610-EC	361	185	325	160	465 x 690 x 360
FR-F740-04320-EC	432	220	361	185	465 x 690 x 360
FR-F740-04810-EC	481	250	432	220	480 x 1010 x 380
FR-F740-05470-EC	547	280	481	250	660 x 1010 x 380
FR-F740-06100-EC	610	315	547	280	660 x 1010 x 380
FR-F740-06830-EC	683	355	610	315	660 x 1010 x 380
FR-F740-07700-EC	770	400	683	355	770 x 1330 x 440
FR-F740-08660-EC	866	450	770	400	770 x 1330 x 440
FR-F740-09620-EC	962	500	866	450	770 x 1330 x 440
FR-F740-10940-EC	1094	560	962	500	950 x 1330 x 440
FR-F740-12120-EC	1212	630	1094	560	950 x 1330 x 440

* 120% for 3s, 110% for 60s

** 150 % for 3s, 120% for 60s

Operating Conditions	Specifications
Voltage	Three-phase 380 to 500V (-15% +10%) (below 75kW to 480V)
Ambient temperature in operation	-10 °C to +50 °C; With use of 120% overload capacity the max. ambient temperature is +40°C
Storage temperature	-20°C to +65°C
Ambient humidity	Max. 90% relative humidity (non-condensing)
Altitude	Max. 1,000m above sea level
Protection rating	Up to 22kW: IP20; from 30 kW: IP00
Shock resistance	10G (3 times each in 3 directions)
Vibration resistance	2G: resistance to vibrations from 10 to 55Hz for 2 hours along all 3 axes
Ambient conditions	For indoor use only; avoid environments containing corrosive gases; install in a dust-free location
Certifications	CE / UL / cUL / GOST

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