

# DFS SERIES



READY TO USE, FAST TURNAROUND

55 kW to 540 kW  
400 V | 690 V

## DFS Series Highlights

- Ready to use
- Fast turnaround
- Easy set-up
- Straightforward set-up & commissioning
- Rugged, reliable drive systems

## DFS VARIANTS

**DFS is available with a control stage to suit any application:**

- Industrial automation systems based upon induction or servo motors, where control dynamics are key.
- HVAC/R systems where dedicated drive features provide overall system control.
- DFS supports the latest high-efficiency motors to maximise return on investment and minimise impact on the environment.

**Select from:**

**Unidrive M700, M701, M702 or Pump Drive F600 control**

M700		Multi-protocol	<ul style="list-style-type: none"> <li>• 2 x Switched Ethernet ports with multi-protocol (EtherNet/IP, Modbus/TCP, RTMoE and PROFINET RT)</li> <li>• 1 x Safe Torque Off (STO) certified to SIL3/PLe</li> <li>• Analogue and digital I/O</li> </ul>
M701		RS485 Modbus RTU	<p>Designed to match Control Techniques' legacy Unidrive SP feature-set.</p> <ul style="list-style-type: none"> <li>• Modbus RTU over RS485 communications</li> <li>• 1 x STO certified to SIL3/PLe</li> <li>• Analogue and digital I/O</li> </ul>
M702		Safety enhanced	<ul style="list-style-type: none"> <li>• 2 x Switched Ethernet ports with multi-protocol</li> <li>• 2 x STO certified to SIL3/ PLe</li> <li>• Digital I/O</li> </ul>
F600		Pump	<ul style="list-style-type: none"> <li>• Highest energy efficiency for pump applications.</li> <li>• Provides sensorless control over both induction and permanent magnet motors</li> <li>• 2 x Relay output</li> </ul>

Please refer to the individual product data sheets for key information

### Output frequency

DFS drives have a maximum output frequency of 599Hz and are, therefore, not subject to special export controls.

# SPECIFICATION

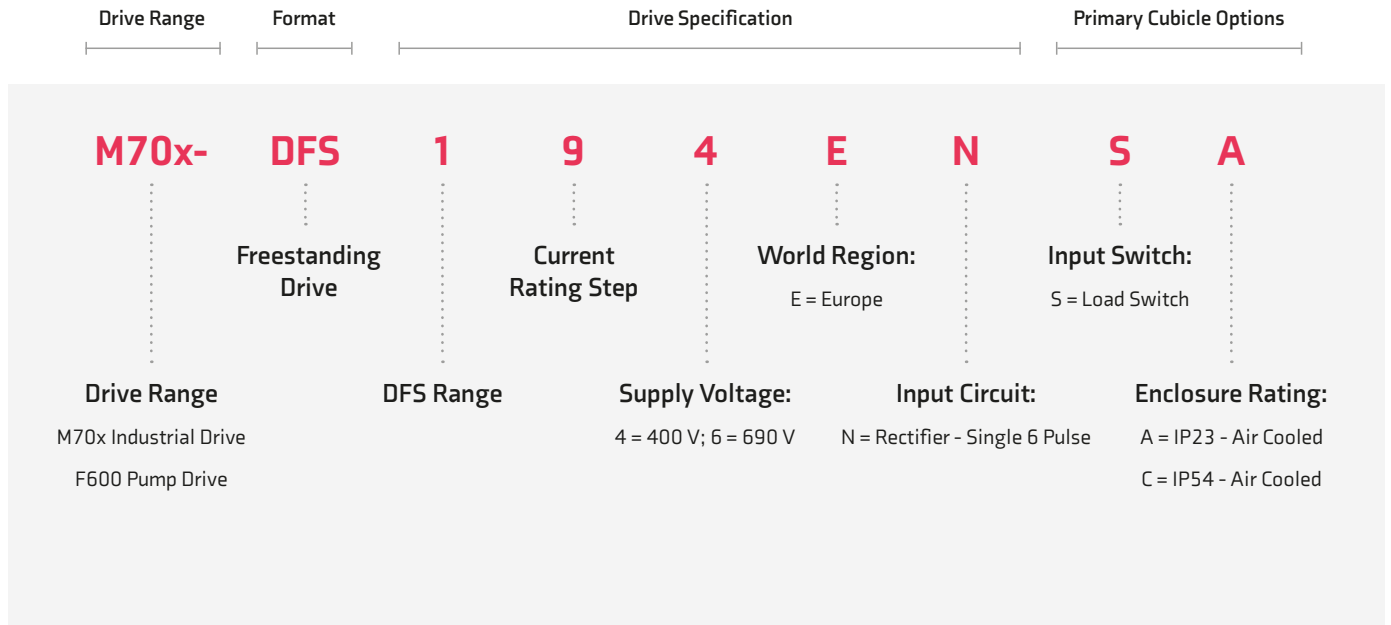
Feature	Description
Enclosure rating	A = IP23 (Standard) C = IP54 - Air inlet grill filters
Electrical environment	EMC filter to meet generic emission IEC 61000-6-4 or operate in the First Environment Remove internal EMC filter for use on un earthed supplies Remove MOV protection for use on un earthed supplies
AC Input Disconnect	A - Main switch with undervoltage release coil 230 VAC (MN) B - Main switch with undervoltage release coil 24 VAC (MN) C - Main switch with shunt trip voltage release coil 230 VAC (MX) D - Main switch with shunt trip voltage release coil 24 VAC (MX) 2 x auxiliary contacts on main switch - supply and wiring
Emergency stop push button door mounted	For integration in your control system
Cubicle Options	Cabinet temperature-controlled roof fan Plinth 200 mm. Standard plinth is 100 mm Alternative 180 ° door hinges for improved access Cylinder lock with key for extra cubicle security
Energy Monitoring	A - kWh meter Conventional (IP54) with current transducers (non MID) B - kWh meter Modbus RTU with current transducers (non MID) C - kWh meter Profibus (400 V SUPPLY ONLY) with current transducers (non MID) D - kWh meter Ethernet with current transducers (non MID) kWh meter pulse contacts in combination with A, B, C OR D kWh meters
24 V back-up power	Supply wiring installed for external 24V backup power supply
Additional Cubicles	A - Integrated 400 mm empty cubicle with plinth, cable plates INCLUDING mounting plate - for your system equipment B - Integrated 400 mm empty cubicle with plinth, cable plates and WITHOUT mounting plate - for your installation cable management
Packaging	Packaging for land freight as standard Packaging for air freight available at extra cost

# DIMENSIONS



Dimensions	
A	IP23 or IP54 up to 180 mm
B	2000 mm
C	100 or 200 mm
D	IP23 or IP54 – 600 mm
E	DFS1 – 400 mm DFS2 – 1200 mm

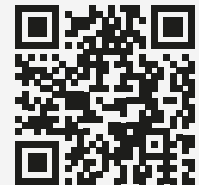
# PRODUCT CODES



## Documentation & Downloads

Product documentation and PC tools available for download from:

[www.controltechniques.com/support](http://www.controltechniques.com/support)



# MODEL NUMBER AND RATINGS

**Drive selection for 380/480 VAC: Load switch, fuses and IP23 protection as standard 40°**

35°C Ambient   IP23 and IP54				
380/480 VAC±10%   50 Hz				
Product Code (Short)	Normal Duty 110 %		Heavy Duty Open Loop = 150 % RFC = 175 %	
	xxxx = F600, M700, M701, M702		xxxx = M700, M701, M702	
	Max Cont. Current	Motor Shaft Power	Max Cont. Current	Motor Shaft Power
	(A)	(kW)	(A)	(kW)
xxxx-DFS1G4EN	155	75	134	55
xxxx-DFS1H4EN	184	90	157	75
xxxx-DFS1J4EN	221	110	180	90
xxxx-DFS1K4EN	255	132	211	110
xxxx-DFS1L4EN	320	160	270	132
xxxx-DFS1M4EN	361	200	307	160
xxxx-DFS1N4EN	437	225	377	200
xxxx-DFS1P4EN	460	250	417	225
xxxx-DFS1Q4EN	460	250	415	225
xxxx-DFS2L4EN	608	315	513	270
xxxx-DFS2M4EN	686	370	583	315
xxxx-DFS2N4EN	830	450	716	380
xxxx-DFS2P4EN	874	470	792	420
xxxx-DFS2Q4EN	874	470	789	420
xxxx-DFS2R4EN	963	520	882	470

**Notes:**

- 3kHz Switching Frequency except where stated otherwise
- "kW" are motor dependant and for indication only
- A braking transistor is included in all drives
- Remaining digits of order code generated automatically for customer selected cubicle options

40°C Ambient   IP23 and IP54				
380/480 VAC ±10%   50 Hz				
Product Code (Short)	Normal Duty 110 %		Heavy Duty Open Loop = 150 % RFC = 175 %	
	xxxx = F600, M700, M701, M702		xxxx = M700, M701, M702	
	Max Cont. Current	Motor Shaft Power	Max Cont. Current	Motor Shaft Power
	(A)	(kW)	(A)	(kW)
xxxx-DFS1G4EN	155	75	134	55
xxxx-DFS1H4EN	184	90	152	75
xxxx-DFS1J4EN	221	110	180 200 (2 kHz)	90
xxxx-DFS1K4EN	221 221 (2 kHz)	132	180 200 (2 kHz)	110
xxxx-DFS1L4EN	320	160	270	132
xxxx-DFS1M4EN	341	200	295 314 (2 kHz)	160
xxxx-DFS1N4EN	426 437 (2 kHz)	225	377	200
xxxx-DFS1P4EN	438 475 (2 kHz)	250	398 416 (2 kHz)	225
xxxx-DFS1Q4EN	438 485 (2 kHz)	250 280 (2 kHz)	398 441 (2 kHz)	225 250 (2 kHz)
xxxx-DFS2L4EN	608	315	513	270
xxxx-DFS2M4EN	648 669 (2 kHz)	370	560 596 (2 kHz)	315
xxxx-DFS2N4EN	809 830 (2 kHz)	450	716	380
xxxx-DFS2P4EN	831 902 (2 kHz)	470 500 (2 kHz)	755 790 (2 kHz)	420
xxxx-DFS2Q4EN	831 921 (2 kHz)	470 520 (2 kHz)	755 838 (2 kHz)	420 470 (2 kHz)

\*Higher powers can be quoted on request

## Drive selection for 500/690 VAC: Load switch, fuses and IP23 protection as standard

35°C Ambient   IP23 and IP54				
500/690 VAC   ±10%   50 Hz				
Product Code (Short)	Normal Duty 110 %		Heavy Duty Open Loop = 150 % RFC = 175 %	
	xxxx = F600, M700, M701, M702		xxxx = M700, M701, M702	
	Max Cont. Current	Motor Shaft Power	Max Cont. Current	Motor Shaft Power
	(A)	(kW)	(A)	(kW)
xxxx-DFS166EN	86	75	63	55
xxxx-DFS176EN	108	90	86	75
xxxx-DFS186EN	125	110	104	90
xxxx-DFS196EN	155	132	131	110
xxxx-DFS1A6EN	172	160	150	132
xxxx-DFS1B6EN	197	185	178	160
xxxx-DFS1C6EN	225	200	210	185
xxxx-DFS1D6EN	265	235	221	185
	275 (2 kHz)	250 (2 kHz)	238 (2 kHz)	200 (2 kHz)
xxxx-DFS1E6EN	265	235	221	185
	305 (2 kHz)	280 (2 kHz)	263 (2 kHz)	250 (2 kHz)
xxxx-DFS2A6EN	327	300	285	260
xxxx-DFS2B6EN	374	355	338	315
xxxx-DFS2C6EN	428	400	399	370
xxxx-DFS2D6EN	504	440	420	370
	523 (2 kHz)	490 (2 kHz)	452 (2 kHz)	420 (2 kHz)
xxxx-DFS2E6EN	504	440	420	370
	580 (2 kHz)	540 (2 kHz)	500 (2 kHz)	460 (2 kHz)

**Notes:**

- 3kHz Switching Frequency except where stated otherwise
- “kW” are motor dependant and for indication only
- A braking transistor is included in all drives
- Remaining digits of order code generated automatically for customer selected cubicle options

40°C Ambient | IP23 and IP54

500/690 VAC | ±10% | 50 Hz

Product Code (Short)	Normal Duty 110 %		Heavy Duty Open Loop = 150 % RFC = 175 %	
	xxxx = F600, M700, M701, M702		xxxx = M700, M701, M702	
	Max Cont. Current	Motor Shaft Power	Max Cont. Current	Motor Shaft Power
	(A)	(kW)	(A)	(kW)
xxxx-DFS166EN	86	75	63	55
xxxx-DFS176EN	103	90	86	75
	106 (2 kHz)			
xxxx-DFS186EN	125	110	104	90
xxxx-DFS196EN	155	132	131	110
xxxx-DFS1A6EN	172	160	150	132
xxxx-DFS1B6EN	197	185	178	160
xxxx-DFS1C6EN	215	200	205	185
			210 (2 kHz)	
xxxx-DFS1D6EN	253	235	211	185
	263 (2 kHz)	250 (2 kHz)	238 (2 kHz)	200 (2 kHz)
xxxx-DFS1E6EN	253	235	211	185
	301 (2 kHz)	280 (2 kHz)	254 (2 kHz)	250 (2 kHz)
xxxx-DFS2A6EN	327	300	285	260
xxxx-DFS2B6EN	374	355	338	315
xxxx-DFS2C6EN	409	400	390	370
			399 (2 kHz)	
xxxx-DFS2D6EN	481	440	400	370
	499 (2 kHz)	490 (2 kHz)	452 (2 kHz)	420 (2 kHz)
xxxx-DFS2E6EN	481	440	400	370
	571 (2 kHz)	540 (2 kHz)	483 (2 kHz)	460 (2 kHz)

\*Higher powers can be quoted on request



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