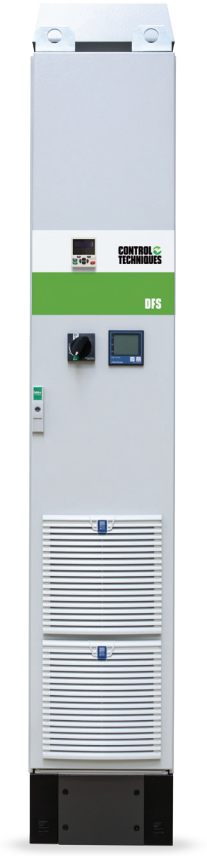
DFS SERIES



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, Pump Drive F600 or HVAC Drive H300

M700		**Multi-protocol**	• 2 x Switched Ethernet ports with multi-protocol (EtherNet/IP, Modbus/TCP, RTMoE and PROFINET RT) • 1 x Safe Torque Off (STO) certified to SIL3/PLe • Analogue and digital I/O
M701		**RS485 Modbus RTU**	Designed to match Control Techniques' legacy Unidrive SP feature-set. • Modbus RTU over RS485 communications • 1 x STO certified to SIL3/PLe • Analogue and digital I/O
M702		**Safety enhanced**	• 2 x Switched Ethernet ports with multi-protocol • 2 x STO certified to SIL3/ PLe • Digital I/O
F600		**Pump**	• Highest energy efficiency for pump applications. • Provides sensorless control over both induction and permanent magnet motors • 2 x Relay output
H300		**HVAC**	• Dedicated, specialist HVAC drive optimised for fan and compressor applications • Modbus RTU and BACnet MS/TP communications provide seamless integration with Building Automation Systems

Please refer to the individual product data sheets for key information

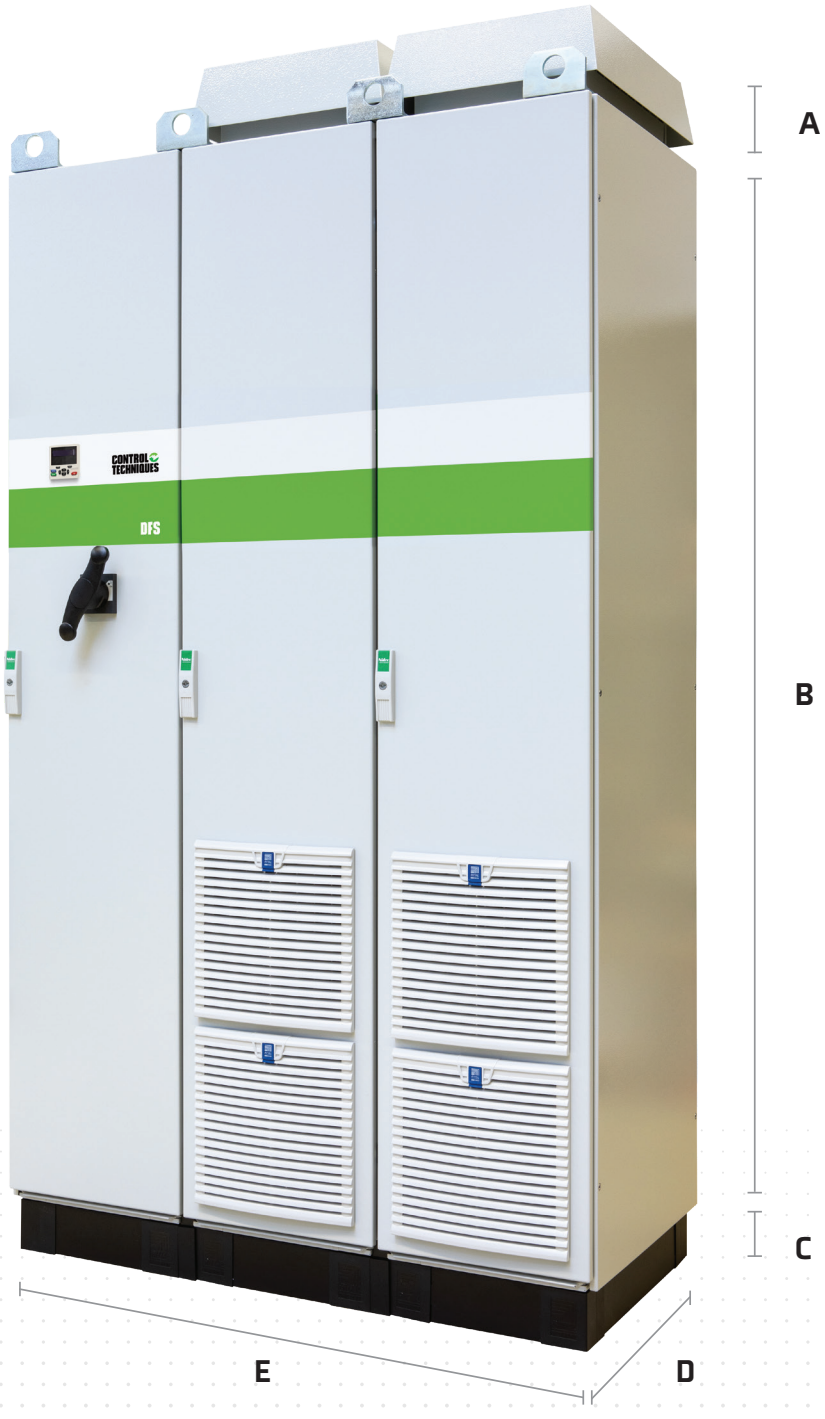
Output frequency

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
F600 HMI	Dedicated interface to configure and monitor your Pump Drive F600 Supports F600 in Single Pump, Cascade and Multi-leader modes Intuitive graphical interface gives real-time access to PID monitoring and historic trends Pre-configured pages can be tailored for application customisation Connect via Modbus RTU or Modbus TCP/IP
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

Drive Range	Format	Drive Specification						Primary Cubicle Options	
M70x-	DFS	1	9	4	E	N	S	A

Drive Range
M70x Industrial Drive
F600 Pump Drive

Format
Freestanding Drive

DFS Range

Current Rating Step

Supply Voltage:
4 = 400 V; 6 = 690 V

World Region:
E = Europe

Input Circuit:
N = Rectifier - Single 6 Pulse

Input Switch:
S = Load Switch

Enclosure Rating:
A = IP23 - Air Cooled
C = IP54 - Air Cooled

Documentation & Downloads

Product documentation and PC tools available for download from:
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	180 200 (2 kHz)	90
xxxx-DFS1K4EN	255 266 (2 kHz)	132 132 (2 kHz)	211 224 (2 kHz)	110 110 (2 kHz)
xxxx-DFS1L4EN	320	160	270	132
xxxx-DFS1M4EN	361	200	307 320 (2 kHz)	160 160 (2 kHz)
xxxx-DFS1N4EN	437	225	377	200
xxxx-DFS1P4EN	460 487 (2 kHz)	250 250 (2 kHz)	417	225
xxxx-DFS1Q4EN	460 507 (2 kHz)	250 280 (2 kHz)	415 464 (2 kHz)	225 250 (2 kHz)
xxxx-DFS2L4EN	608	315	513	270
xxxx-DFS2M4EN	686	370	583 608 (2 kHz)	315 315 (2 kHz)
xxxx-DFS2N4EN	830	450	716	380
xxxx-DFS2P4EN	874 925 (2 kHz)	470 500 (2 kHz)	792	420
xxxx-DFS2Q4EN	874 963 (2 kHz)	470 520 (2 kHz)	789 882 (2 kHz)	420 470 (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				
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	103 106 (2 kHz)	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	215	200	205 210 (2 kHz)	185
xxxx-DFS1D6EN	253 263 (2 kHz)	235 250 (2 kHz)	211 238 (2 kHz)	185 200 (2 kHz)
xxxx-DFS1E6EN	253 301 (2 kHz)	235 280 (2 kHz)	211 254 (2 kHz)	185 250 (2 kHz)
xxxx-DFS2A6EN	327	300	285	260
xxxx-DFS2B6EN	374	355	338	315
xxxx-DFS2C6EN	409	400	390 399 (2 kHz)	370
xxxx-DFS2D6EN	481 499 (2 kHz)	440 490 (2 kHz)	400 452 (2 kHz)	370 420 (2 kHz)
xxxx-DFS2E6EN	481 571 (2 kHz)	440 540 (2 kHz)	400 483 (2 kHz)	370 460 (2 kHz)

***Higher powers can be quoted on request**

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