

Variable speed drives

Altivar 61 RS accessory guide

Catalogue
September

05



For 3-phase asynchronous motors from 11 to 30 kW

Variable speed drives for asynchronous motors

Altivar 61

Supply voltage 380...480V 50/60 Hz

UL Type 1/IP 20 drives

Motor Power indicated on plate (1)		Line supply				Altivar 61			Reference (3)	Weight
		Line current (2)		Apparent power	Maximum prospective line Isc	Max. continuous current (1)		Max. transient current for 60 s		
		380 V	480 V			380 V	380 V			
kW	HP	A	A	kVA	kA	A	A	A	kg	
Three phase supply voltage: 380...480 V 50/60 Hz										
0.75	1	3.7	3	2.4	5	2.3	2.1	2.7	ATV 61H075N4 (4)	3.000
1.5	2	5.8	5.3	3.8	5	4.1	3.4	4.9	ATV 61HU15N4 (4)	3.000
2.2	3	8.2	7.1	5.4	5	5.8	4.8	6.9	ATV 61HU22N4 (4)	3.000
3	–	10.7	9	7	5	7.8	6.2	9.3	ATV 61HU30N4 (4)	4.000
4	5	14.1	11.5	9.3	5	10.5	7.6	12.6	ATV 61HU40N4 (4)	4.000
5.5	7.5	20.3	17	13.4	22	14.3	11	17.1	ATV 61HU55N4 (4)	5.500
7.5	10	27	22.2	17.8	22	17.6	14	21.1	ATV 61HU75N4 (4)	5.500
11	15	36.6	30	24.1	22	27.7	21	33.2	ATV 61HD11N4 (4)	7.000
15	20	48	39	31.6	22	33	27	39.6	ATV 61HD15N4 (4)	9.000
18.5	25	45.5	37.5	29.9	22	41	34	49.2	ATV 61HD18N4 (4)	9.000
22	30	50	42	32.9	22	48	40	57.6	ATV 61HD22N4 (4)	19.000
30	40	66	56	43.4	22	66	52	79.2	ATV 61HD30N4 (4)	26.000
37	50	84	69	55.3	22	79	65	94.8	ATV 61HD37N4 (4)	26.000
45	60	104	85	68.5	22	94	77	112.8	ATV 61HD45N4 (4)	44.000
55	75	120	101	79	22	116	96	139.2	ATV 61HD55N4 (4)	44.000
75	100	167	137	109.9	22	160	124	192	ATV 61HD75N4 (4)	44.000
90	125	166	143	109.3	35	179	179	214.8	ATV 61HD90N4 (5) (6)	60.000
110	150	202	168	133	35	215	215	236.5	ATV 61HC11N4 (5) (6)	74.000
132	200	239	224	157.3	35	259	259	284.9	ATV 61HC13N4 (5) (6)	80.000
160	250	289	275	190.2	50	314	314	345.4	ATV 61HC16N4 (5) (6)	110.000
200	300	357	331	235	50	427	427	469.7	ATV 61HC22N4 (5) (6)	140.000
220	350	396	383	260.6	50					
250	400	444	435	292.2	50	481	481	529.1	ATV 61HC25N4 (5) (6)	140.000
280	450	494	494	325.1	50	616	616	677.6	ATV 61HC31N4 (5) (6)	215.000
315	500	555	544	365.3	50					
355	–	637	597	419.3	50	759	759	834.9	ATV 61HC40N4 (5) (6)	225.000
400	600	709	644	466.6	50					
500	700	876	760	576.6	50	941	941	1035.1	ATV 61HC50N4 (5) (6)	300.000
560	800	978	858	643.6	50	1188	1188	1306.8	ATV 61HC63N4 (5) (6)	300.000
630	900	1091	964	718	50					

(1) These values are for a nominal switching frequency of 12 kHz up to ATV 61HD75N4, of 4 kHz for ATV 61HD90N4 or of 2.5 kHz for ATV 61HD11N4...HC63N4 drives for use in continuous operation.

The switching frequency is adjustable from 1...16 kHz up to ATV 61HD75N4 and from 2...8 kHz for ATV 61HD90N4...ATV 61HC63N4 drives.

Above 2.5, 4 or 12 kHz, depending on the rating, the drive reduces the switching frequency itself in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current, see derating curves on pages 138 to 143.

(2) Typical value for the indicated motor power and for the maximum prospective line Isc.

(3) The ATV 61HD90N4...HC63N4 drives come in a reinforced versions as standard, enabling them to operate in particular environmental conditions; see the environmental conditions on page 9.

To order the reinforced version of the ATV 61H075N4...HD75N4 drives, add **S337** at the end of the reference. Example: ATV 61H075N4 becomes **ATV 61H075N4S337**.

If a reinforced version of the drive is supplied for particular environmental conditions, it must come with a remote graphic display terminal.

The ATV 61HD90N4...HC63N4 drives come in the reinforced version as standard.

(4) All drives come with a remote graphic display terminal. The ATV 61H075N4...ATV 61HD75N4 drives can be ordered without a graphic display terminal. In this case, add a **Z** at the end of the reference. They will then come equipped with an integrated 7-segment display terminal.

Example: ATV 61H075N4 without a graphic display terminal becomes **ATV 61H075N4Z**.

(5) Drive supplied as standard with a DC choke, which must be used when connecting the drive to the 3-phase supply. For connections to the DC bus, the drive can be ordered without a DC choke by adding **D** at the end of the reference.

Example: ATV 61HD90N4 becomes **ATV 61HD90N4D**.

(6) Drive supplied without plate for EMC mounting. Depending on the rating, the plate is included in the UL Type 1 conformity kit and/or in the IP 31 conformity kit, to be ordered separately:

- for ATV 61HD90N4...ATV 61HC31N4 drives, order the UL Type 1 or IP 31 conformity kit, see pages 24 and 25,
- for ATV 61HC40N4...HC63N4 drives, order the IP 31 conformity kit, see page 25.

Note: Consult the tables summarizing the possible combinations: drives, options and accessories, see pages 84 to 87.

DF594523



ATV 61HU22N4

DF594624



ATV 61HU40N4Z

DF594564



ATV 61HC31N4

Variable speed drives for asynchronous motors

Altivar 61

Supply voltage 380...480V 50/60 Hz

UL Type 12/IP 54 drives with an integrated class A EMC filter

Motor		Line supply				Altivar 61			Reference (3) (4) (5)	Weight
Power indicated on plate (1)		Line current (2)		Apparent power	Maximum prospective line Isc	Max. continuous current (1)	Max. transient current for 60 s			
		380 V	480 V	380 V						
kW	HP	A	A	kVA	kA	A	A	A		kg
Three phase supply voltage: 380...480 V 50/60 Hz										
0.75	1	1.8	1.5	1.2	5	2.3	2.1	2.5	ATV 61W075N4	13.000
1.5	2	3.5	3	2.3	5	4.1	3.4	4.5	ATV 61WU15N4	13.000
2.2	3	5	4.1	3.3	5	5.1	4.8	5.6	ATV 61WU22N4	13.000
3	–	6.7	5.6	4.4	5	7.2	6.2	7.9	ATV 61WU30N4	14.000
4	5	8.8	7.4	5.8	5	9.1	7.6	10	ATV 61WU40N4	16.000
5.5	7.5	11.4	9.2	7.5	22	12	11	13.2	ATV 61WU55N4	16.000
7.5	10	15.8	13.3	10.4	22	16	14	17.6	ATV 61WU75N4	22.000
11	15	21.9	17.8	14.4	22	22.5	21	24.7	ATV 61WD11N4	22.000
15	20	30.5	25.8	20	22	30.5	27	33.5	ATV 61WD15N4	28.000
18.5	25	37.5	32.3	24.7	22	37	34	40.7	ATV 61WD18N4	36.000
22	30	43.6	36.6	28.7	22	43.5	40	47.8	ATV 61WD22N4	36.000
30	40	56.7	46.2	37.3	22	58.5	52	64.3	ATV 61WD30N4	51.000
37	50	69.5	56.8	45.7	22	71.5	65	78.6	ATV 61WD37N4	64.000
45	60	85.1	69.6	56	22	85	77	93.5	ATV 61WD45N4	65.000
55	75	104.8	87	69	35	103	96	113.3	ATV 61WD55N4	92.000
75	100	140.3	113.8	92.3	35	137	124	150.7	ATV 61WD75N4	92.000
90	125	171.8	140.9	113	35	163	156	179.3	ATV 61WD90N4	92.000

(1) These values are given for the nominal frequency switching of 8 kHz up to ATV 61WD15N4, or of 4 kHz for ATV 61WD18N4...WD90N4 drives for use in continuous operation.

The switching frequency is adjustable from 2...16 kHz for all ratings.

Above 4 or 8 kHz, depending on the rating, the drive will reduce the switching frequency itself in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current, see derating curves on pages 144 and 145.

(2) Typical value for the indicated motor power and for the maximum prospective line Isc.

(3) These drives can be ordered in a reinforced version, enabling them to operate in particular environmental conditions; see environmental conditions on page 9. In this case, add **337** at the end of the reference.

Example: ATV 61W075N4 becomes **ATV 61W075N4337**.

(4) Drives supplied with 2 EMC plates:

- 1 for UL Type 12 conformity, to be installed by yourself,
- 1 for IP 54 conformity, already installed.

(5) These drives can be ordered with a 24 V \pm power supply, allowing an additional consumption of 250 mA. In this case, add **A24** at the end of the reference.

Example: ATV 61W075N4 becomes **ATV 61W075N4A24**.

Note: Consult the tables summarizing the possible combinations: drives, options and accessories, see pages 88 and 89.

DF534865



ATV 61W075N4

Variable speed drives for asynchronous motors

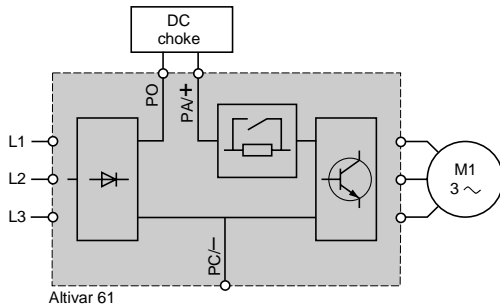
Altivar 61: Reduction of current harmonics Option: DC chokes

The main solutions for reducing current harmonics are as follows:

- DC chokes, see below
- Line chokes, see page 66
- 16% and 10% passive filters, see page 69
- Use of passive filters with a DC choke, see pages 69 to 73

These 4 solutions can be used on the same installation.

It is always easier and less expensive to handle current harmonics at installation level as a whole rather than at the level of each individual unit, particularly when using passive filters and active compensators.



DC chokes

DC chokes are used to reduce current harmonics in order to comply with standard IEC/61000-3-2 for drives on which the line current is greater than 16 A and less than 75 A.

Using the DC choke with the drive complies with draft standard IEC/61000-3-12 provided that the $RSCE \geq 120$ (1) at the point of connection to the public network. 120 represents the minimum value of RSCE (1) for which the values in table 4 of draft standard IEC/61000-3-12 are not exceeded.

It is the responsibility of the installer or the user to ensure that the device is connected correctly to a connection point with an $RSCE \geq 120$.

The DC choke is connected to the drive power terminals.

It is supplied as standard with ATV 61HD55M3X, HD90M3X and ATV 61HD90N4...HC63N4 drives and is integrated into ATV 61W●●●N4 and ATV 61W●●●N4C drives.

Applications

Reduction of current harmonics.

Reduction of THD to 5% or to 10% in association with passive filters, see pages 69 to 73.

Maintaining the motor torque in relation to the DC choke.

(1) Short-circuit ratio

Variable speed drives for asynchronous motors

Altivar 61: Reduction of current harmonics

Option: DC chokes

Example of current harmonic levels for ATV 61H075M3...ATV 61HD90M3X drives (1)

Motor power	For ATV 61 drives	Line supply		Current harmonic levels																THD (2)		
		Line current	Line Isc	H1	H5	H7	H11	H13	H17	H19	H23	H25	H29	H31	H35	H37	H41	H43	H47		H49	
kW	HP	A	kA	A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
3-phase supply voltage: 230 V 50 Hz, with optional DC choke																						
0.75	1	H075M3	3.05	5	2.81	31.99	20.91	8.88	7.36	5.6	4.63	4.07	3.42	3.18	2.71	2.59	2.24	2.17	1.91	1.86	1.66	41.27
1.5	2	HU15M3	6.04	5	5.55	33.65	21.59	8.14	6.84	4.97	4.19	3.54	3.08	2.71	2.43	2.17	2.01	1.78	1.7	1.5	1.47	42.4
2.2	3	HU22M3	8.33	5	7.64	34.89	21.11	8.78	6.72	5.36	4.1	3.8	3	2.9	2.37	2.29	1.95	1.85	1.66	1.52	1.44	43.33
3	-	HU30M3	11.12	5	10.19	35.17	20.68	8.71	6.48	5.24	3.94	3.67	2.88	2.76	2.27	2.15	1.87	1.71	1.58	1.37	1.37	43.22
4	5	HU40M3	14.53	5	13.29	36.23	20.51	8.73	6.2	5.2	3.73	3.61	2.71	2.68	2.14	2.06	1.76	1.61	1.49	1.27	1.28	43.91
5.5	7.5	HU55M3	19.2	8	17.9	30.68	17.26	8.75	6.31	5.3	4.03	3.72	2.98	2.79	2.36	2.17	1.94	1.71	1.63	1.36	1.4	38
7.5	10	HU75M3	26.1	15	23.9	35.23	21.09	8.82	6.71	5.38	4.08	3.82	2.98	2.91	2.35	2.31	1.92	1.87	1.63	1.54	1.4	43.96
11	15	HD11M3X	36.6	15	34.2	30.91	17.12	8.86	6.36	5.37	4.08	3.77	3.01	2.82	2.37	2.19	1.94	1.73	1.62	1.37	1.38	38.14
15	20	HD15M3X	48.6	15	45.8	28.3	14.9	8.8	6.2	5.3	4.1	3.7	3	2.7	2.4	2.1	1.9	1.6	1.6	1.2	1.3	35
18.5	25	HD18M3X	60	22	56	31.5	17.1	8.7	6.1	5.2	3.9	3.7	2.9	2.7	2.3	2.1	1.9	1.7	1.6	1.3	1.3	38.5
22	30	HD22M3X	70.28	22	65.92	29.81	15.91	8.7	6.15	5.23	3.99	3.63	2.95	2.68	2.32	2.04	1.89	1.57	1.57	1.22	1.32	36.62
30	40	HD30M3X	96.9	22	88.78	36.68	19.42	8.38	5.67	4.86	3.44	3.29	2.52	2.38	1.98	1.77	1.62	1.34	1.34	1.02	1.12	43.51
37	50	HD37M3X	116.1	22	107.9	33.09	16.4	8.59	5.59	4.97	3.54	3.33	2.6	2.36	2.03	1.72	1.63	1.26	1.32	0.94	1.06	39.24
45	60	HD45M3X	138.7	22	130.5	30.15	13.86	8.65	5.38	5.01	3.49	3.33	2.55	2.33	1.96	1.66	1.53	1.2	1.19	0.9	0.9	35.7
3-phase supply voltage: 230 V 50 Hz, with DC choke supplied as standard with the drive																						
55	75	HD55M3X	120	14	109.29	39.77	18.67	7.98	4.67	4.16	2.59	2.61	1.81	1.76	1.35	1.23	1.02	0.87	0.78	0.63	0.59	45.36
75	100	HD75M3X	163.0	35	148.35	38.83	20.24	8.2	5.43	4.58	3.15	3.04	2.24	2.17	1.7	1.62	1.33	1.23	1.06	0.94	0.84	45.51
90	125	HD90M3X	196.06	35	177.16	40.75	21.04	8.1	5.26	4.42	2.93	2.88	2.06	2.04	1.55	1.49	1.21	1.12	0.95	0.85	0.75	47.41

Example of current harmonic levels for ATV 61H075N4...ATV 61HC63N4 drives (1)

Motor power	For ATV 61 drives	Line supply		Current harmonic levels																THD (2)		
		Line current	Line Isc	H1	H5	H7	H11	H13	H17	H19	H23	H25	H29	H31	H35	H37	H41	H43	H47		H49	
kW	HP	A	kA	A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
3-phase supply voltage: 400 V 50 Hz, with optional DC choke																						
0.75	1	H075N4	1.77	5	1.61	34.6	23.7	8.9	7.8	5.6	4.8	4.1	3.5	3.2	2.8	2.6	2.3	2.2	1.9	1.9	1.7	44.95
1.5	2	HU15N4	3.34	5	3.03	35.55	23.53	8.95	7.65	5.61	4.74	4.06	3.49	3.16	2.76	2.57	2.28	2.15	1.94	1.83	1.68	45.48
2.2	3	HU22N4	4.83	5	4.4	35.79	22.77	8.7	7.11	5.41	4.36	3.89	3.2	3.01	2.53	2.43	2.09	2.01	1.77	1.7	1.53	45
3	-	HU30N4	6.13	5	5.67	31.61	18.82	9.41	6.82	5.88	4.57	4.24	3.38	3.28	2.67	2.63	2.19	2.16	1.86	1.8	1.6	40.08
4	5	HU40N4	8.24	5	7.51	36.16	21.63	9	8.17	5.52	4.17	3.93	3.05	3	2.4	2.38	1.98	1.93	1.68	1.58	1.45	44.72
5.5	7.5	HU55N4	10.81	22	9.83	34.85	23.08	9.68	4.05	6.12	5.18	4.45	3.83	3.48	3.04	2.85	2.52	2.4	2.14	2.06	1.85	45.19
7.5	10	HU75N4	15.01	10	13.8	34.09	20.49	8.57	6.43	5.28	3.95	3.78	2.89	2.9	2.28	2.32	1.88	1.9	1.59	1.58	1.37	42.25
11	15	HD11N4	21.1	9	19.3	35.22	20.11	8.95	6.5	5.41	4.02	3.8	2.95	2.86	2.32	2.23	1.9	1.77	1.6	1.42	1.37	43.1
15	20	HD15N4	28.2	12	25.8	35.22	20.01	8.98	6.49	5.43	4.02	3.82	2.94	2.88	2.32	2.24	1.9	1.78	1.6	1.43	1.37	43.06
18.5	25	HD18N4	33.9	12	31.9	28.36	15.16	8.85	6.18	5.39	4.04	3.78	2.98	2.83	2.34	2.18	1.9	1.7	1.58	1.33	1.33	35.23
22	30	HD22N4	40.87	22	37.85	32.79	18.73	8.6	6.42	5.28	4.09	3.75	3.03	2.85	2.4	2.25	1.97	1.81	1.67	1.48	1.44	40.4
30	40	HD30N4	54.1	20	50.6	29.97	16.26	8.75	6.27	5.32	4.07	3.73	3.01	2.79	2.37	2.15	1.94	1.69	1.62	1.33	1.38	36.99
37	50	HD37N4	66.43	22	62.6	28.49	15.01	8.63	6.08	5.23	4	3.65	2.97	2.71	2.34	2.07	1.9	1.61	1.58	1.26	1.32	35.13
45	60	HD45N4	83.11	22	75.56	38.31	20.96	8.24	5.81	4.85	3.48	3.33	2.54	2.44	2	1.85	1.64	1.42	1.38	1.1	1.17	45.59
55	75	HD55N4	98.6	22	91.69	32.94	16.76	8.5	5.68	4.98	3.62	3.38	2.67	2.44	2.09	1.81	1.69	1.37	1.39	1.04	1.14	39.29
75	100	HD75N4	134	22	125.9	30.65	14.43	8.4	5.4	4.84	3.52	3.21	2.59	2.25	2	1.61	1.58	1.17	1.25	0.88	0.96	36.2
3-phase supply voltage: 400 V 50 Hz, with DC choke supplied as standard with the drive																						
90	125	HD90N4	158.81	35	145.1	36.72	20.66	8.33	6.19	4.93	3.78	3.43	2.75	2.56	2.13	1.99	1.72	1.59	1.4	1.29	1.16	44.26
110	150	HC11N4	188.59	35	175.53	33.15	16.56	8.29	5.6	4.81	3.57	3.26	2.58	2.36	1.97	1.77	1.53	1.36	1.2	1.04	0.95	39.26
132	200	HC13N4	226.53	35	209.69	34.91	17.14	8.21	5.36	4.66	3.33	3.11	2.4	2.22	1.82	1.64	1.41	1.24	1.1	0.94	0.86	40.86
160	250	HC16N4	271.34	50	251.7	34	17.22	8.28	5.59	4.8	3.51	3.23	2.56	2.35	1.94	1.76	1.51	1.34	1.2	1.04	0.95	40.24
200	300	HC22N4	337.95	50	313.51	34.38	16.75	8.23	5.33	4.65	3.32	3.09	2.39	2.2	1.81	1.63	1.38	1.22	1.07	0.91	0.84	40.24
220	350	HC22N4	369.49	50	344.77	32.98	15.54	8.23	5.26	4.66	3.33	3.07	2.39	2.17	1.79	1.57	1.35	1.16	1.03	0.86	0.79	38.53
250	400	HC25N4	418.15	50	390.95	32.69	14.89	8.15	5.14	4.56	3.26	2.98	2.32	2.07	1.71	1.48	1.29	1.07	0.97	0.78	0.72	37.95
280	450	HC31N4	471.17	50	437.41	34.78	15.9	8.1	4.92	4.44	3.04	2.86	2.16	1.97	1.6	1.4	1.21	1	0.9	0.72	0.67	40.05
315	500	HC31N4	526.6	50	492.29	33.1	14.44	8.08	4.85	4.41	3.05	2.81	2.15	1.9	1.57	1.32	1.15	0.92	0.84	0.65	0.61	37.99
355	-	HC40N4	591.92	50	554.81	32.59	13.7	8	4.73	4.32	2.99	2.71	2.09	1.8	1.5	1.22	1.08	0.84	0.78	0.57	0.55	37.2
400	600	HC40N4	660.94	50	622.77	31.23	12.61	7.95	4.71	4.26	2.99	2.63	2.06	1.71	1.45	1.12	1.01	0.75	0.7	0.51	0.49	35.57
500	700	HC50N4	834.65	50	781.47	33.52	13.05	7.75	4.28	3.97	2.65	2.37	1.82	1.49	1.26	0.96	0.88	0.63	0.61	0.43	0.42	37.54
560	800	HC63N4	930.84	50	874.82	32.5	12.37	7.76	4.28	3.96	2.67	2.34	1.78	1.46	1.21	0.86	0.79	0.56	0.54	0.39	0.38	36.39
630	900	HC63N4	1037.11	50	980.2	31.06	11.11	7.64	4.23	3.81	2.63	2.15	1.73	1.27	1.13	0.77	0.73	0.5	0.48	0.39	0.36	34.61

(1) Example of current harmonic levels up to harmonic order 49 for a 400 V/50 Hz supply with chokes connected between the PO and PA+ terminals on the Altivar 61.

(2) Total harmonic distortion conforming to draft standard IEC 61000-3-12.

Variable speed drives for asynchronous motors

Altivar 61: Reduction of current harmonics
Option: DC chokes

Example of current harmonic levels for ATV 61W●●●N4 and ATV 61W●●●N4C drives (1)

3-phase supply voltage: 400 V 50 Hz, with integrated DC choke

Motor power	For ATV 61 drives	Line supply		Current harmonic levels																THD (2)		
		Line current	Line Isc	H1	H5	H7	H11	H13	H17	H19	H23	H25	H29	H31	H35	H37	H41	H43	H47		H49	
kW	HP	A	kA	A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		
0.75	1	W075N4 W075N4C	1.75	5	1.61	32.12	22.41	8.97	7.96	5.77	5	4.25	3.69	3.36	2.93	2.78	2.43	2.37	2.08	2.06	1.81	42.65
1.5	2	WU15N4 WU15N4C	3.38	5	3.08	34.84	23.58	8.77	7.71	5.60	4.77	4.11	3.51	3.24	2.78	2.67	2.30	2.26	1.96	1.96	1.71	45.12
2.2	3	WU22N4 WU22N4C	4.77	5	4.38	33.37	22.01	8.8	7.48	5.6	4.7	4.1	3.48	3.23	2.76	2.65	2.28	2.24	1.94	1.93	1.69	43.12
3	-	WU30N4 WU30N4C	6.39	5	5.84	35.07	22.41	8.51	7.38	5.36	4.63	3.89	3.43	3.04	2.73	2.48	2.26	2.08	1.93	1.79	1.67	44.48
4	5	WU40N4 WU40N4C	8.39	5	7.64	36.07	22.73	8.45	7.27	5.29	4.52	3.82	3.33	2.97	2.65	2.42	2.19	2.02	1.86	1.73	1.61	45.34
5.5	7.5	WU55N4 WU55N4C	10.71	22	9.9	30.94	21	9.56	8.22	6.09	5.31	4.47	3.94	3.52	3.14	2.9	2.6	2.45	2.21	2.11	1.92	41.41
7.5	10	WU75N4 WU75N4C	15.10	22	13.73	35.93	23.66	8.72	7.55	5.53	4.65	4.03	3.41	3.16	2.7	2.59	2.23	2.19	1.89	1.88	1.64	45.9
11	15	WD11N4 WD11N4C	20.75	22	19.35	29.81	18.76	9.1	7.38	5.76	4.79	4.2	3.56	3.29	2.83	2.69	2.34	2.26	1.99	1.93	1.72	38.88
15	20	WD15N4 WD15N4C	28.74	22	26.24	35.65	22.28	8.55	7.22	5.32	4.50	3.83	3.32	2.97	2.63	2.41	2.17	2.01	1.84	1.71	1.58	44.79
18.5	25	WD18N4 WD18N4C	35.41	22	32.11	37.49	23.29	8.44	7.13	5.22	4.36	3.74	3.19	2.88	2.52	2.32	2.08	1.93	1.75	1.63	1.51	46.65
22	30	WD22N4 WD22N4C	41.66	22	37.87	37.21	22.55	8.38	6.95	5.16	4.26	3.69	3.13	2.84	2.47	2.29	2.02	1.89	1.7	1.6	1.46	45.99
30	40	WD30N4 WD30N4C	54.02	22	50.77	29.05	16.24	8.66	6.55	5.39	4.32	3.86	3.22	2.96	2.55	2.36	2.09	1.92	1.76	1.59	1.5	36.54
37	50	WD37N4 WD37N4C	66.15	22	62.09	29.46	16.33	8.76	6.51	5.41	4.25	3.85	3.15	2.93	2.48	2.32	2.03	1.86	1.7	1.52	1.45	36.89
45	60	WD45N4 WD45N4C	80.82	22	75.33	31.82	17.26	8.57	6.24	5.22	4.02	3.69	2.97	2.78	2.34	2.18	1.91	1.73	1.59	1.39	1.35	38.98
55	75	WD55N4 WD55N4C	100.42	22	92.45	35.41	19.11	8.24	6.06	4.92	3.78	3.43	2.77	2.57	2.16	2	1.73	1.6	1.42	1.3	1.18	42.51
75	100	WD75N4 WD75N4C	133.88	22	125.86	30.11	14.93	8.5	5.85	5.07	3.82	3.49	2.81	2.56	2.19	1.92	1.76	1.46	1.43	1.12	1.18	36.35
90	125	WD90N4 WD90N4C	164.46	35	152.4	33.86	17.83	8.24	5.98	4.93	3.8	3.43	2.8	2.57	2.18	2	1.75	1.6	1.43	1.29	1.18	40.65

(1) Example of current harmonic levels up to harmonic order 49 for a 400 V/50 Hz supply with chokes connected between the PO and PA+ terminals on the Altivar 61.

(2) Total harmonic distortion conforming to draft standard IEC 61000-3-12.

Variable speed drives for asynchronous motors

Altivar 61: Reduction of current harmonics
Option: DC chokes

General characteristics

Degree of protection			IP 20
Maximum relative humidity			95%
Ambient air temperature around the device	Operation	°C	- 10...+ 50 without derating Up to 60°C with current derating of 2.2% per °C above 50°C
	Storage	°C	- 40...+ 65
Maximum operating altitude		m	1000 without derating 1000...3000 with current derating of 1% per additional 100 m
Voltage drop			4 to 6%
Maximum current			1.65 x nominal current for 60 seconds

Connection characteristics

Type of terminal		Earth	Power supply
Maximum connection capacity and tightening torque	VW3 A4 501...505	10 mm ² (AWG 6) 1.2...1.4 Nm	2.5 mm ² (AWG 12) 0.4...0.6 Nm
	VW3 A4 506	10 mm ² (AWG 6) 1.2...1.4 Nm	4 mm ² (AWG 10) 0.5...0.8 Nm
	VW3 A4 507	10 mm ² (AWG 6) 1.2...1.4 Nm	6 mm ² (AWG 8) 0.8...1 Nm
	VW3 A4 508, 509	10 mm ² (AWG 6) 1.2...1.4 Nm	10 mm ² (AWG 6) 1.2...1.4 Nm
	VW3 A4 510	10 mm ² (AWG 6) 1.2...1.4 Nm	35 mm ² (AWG 0) 2.5...3 Nm
	VW3 A4 511	–	Connected on a bar, Ø 9 –
	VW3 A4 512	–	Connected on a bar, Ø 9 –

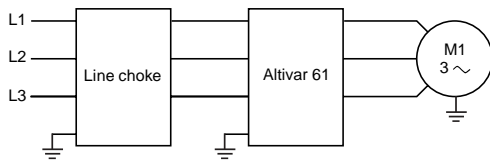
DC chokes (1)

For drives	Inductance value	Nominal current	Loss	Reference	Weight
3-phase supply voltage: 200...240 V 50/60 Hz					
ATV 61H075M3	6.8	8	22.5	VW3 A4 503	1.700
ATV 61HU15M3	3.2	14.3	32	VW3 A4 505	2.200
ATV 61HU22M3	2.2	19.2	33	VW3 A4 506	2.500
ATV 61HU30M3	1.6	27.4	43	VW3 A4 507	3.000
ATV 61HU40M3, HU55M3	1.2	44	61	VW3 A4 508	4.500
ATV 61HU75M3	0.7	36	30.5	VW3 A4 509	2.500
ATV 61HD11M3X, HD15M3X	0.52	84.5	77	VW3 A4 510	6.200
ATV 61HD18M3X, HD22M3X	0.22	171.2	86	VW3 A4 511	15.500
ATV 61HD30M3X... HD45M3X	0.09	195	73	VW3 A4 512	10.000
3-phase supply voltage: 380...480 V 50/60 Hz					
ATV 61H075N4	18	2.25	7.7	VW3 A4 501	0.650
ATV 61HU15N4	10	4.3	11	VW3 A4 502	1.000
ATV 61HU22N4, HU30N4	6.8	8	22.5	VW3 A4 503	1.700
ATV 61HU40N4	3.9	10.7	27	VW3 A4 504	1.650
ATV 61HU55N4	3.2	14.3	32	VW3 A4 505	2.200
ATV 61HU75N4	2.2	19.2	33	VW3 A4 506	2.500
ATV 61HD11N4	1.6	27.4	43	VW3 A4 507	3.000
ATV 61HD15N4, HD18N4	1.2	44	57.5	VW3 A4 508	4.300
ATV 61HD22N4... HD37N4	0.52	84.5	98.3	VW3 A4 510	5.600
ATV 61HD45N4... HD75N4	0.22	171.2	128	VW3 A4 511	9.100

(1) For ATV 61HD55M3X...HD90M3X, ATV 61HD90N4...HC63N4 drives, the choke is supplied as standard with the drive.
It is integrated into ATV 61W●●●N4 and ATV 61W●●●N4C drives.

Variable speed drives for asynchronous motors

Altivar 61: Reduction of current harmonics
Option: Line chokes



Line chokes

A line choke can be used to provide improved protection against overvoltages on the line supply and to reduce the current harmonics produced by the drive.

Line chokes are compulsory on ATV 61HU40M3...HU75M3 drives supplied with a single phase 200...240 V 50/60 Hz supply voltage.

They can be used instead of a DC choke. In this case, to order an ATV 61HD55M3X...HD90M3X and ATV 61HD90N4...HC63N4 drive without DC choke, add the letter D to the end of the drive's reference, see pages 18 and 19.

The recommended chokes can be used to limit the line current. They have been developed in line with standard EN 50178 (VDE 0160 level 1 high energy overvoltages on the line supply).

The inductance values are defined for a voltage drop between phases of between 3% and 5% of the nominal line voltage. Values higher than this will cause loss of torque.

These chokes should be installed upstream of the drive.

Applications

The use of line chokes is recommended in particular under the following circumstances:

- Close connection of several drives in parallel
- Line supply with significant disturbance from other equipment (interference, overvoltages)
- Line supply with voltage imbalance between phases above 1.8% of the nominal voltage
- Drive supplied by a line with very low impedance (in the vicinity of a power transformer 10 times more powerful than the drive rating)
- Installation of a large number of frequency converters on the same line
- Reduction of overload in $\cos \varphi$ correction capacitors, if the installation has a power factor correction unit

Variable speed drives for asynchronous motors

Altivar 61: Reduction of current harmonics
Option: Line chokes

General characteristics		VW3 A58501, A58502	VW3 A4 551... A4 553	VW3 A4 554, A4 555	VW3 A4 556... A4 560	VW3 A4 561, A4 564, 565, A4 568, 569
Type of choke						
Conformity to standards		EN 50178 (VDE 0160 level 1 high energy overvoltages on the line supply), IEC 60076 (with HD 398)				
Degree of protection	Choke	IP 00				
	Terminals	IP 20		IP 10	IP 00	
Atmospheric pollution		3 C2, 3B1, 3S1 conforming to IEC 721.3.3				
Degree of pollution		2 conforming to EN 50178				
Vibration resistance		1.5 mm from 3...13 Hz, 1 gn from 13...200 Hz, conforming to IEC 60068-2				
Shock resistance		15 gn for 11 ms conforming to IEC/EN 60068-2-27				
Maximum relative humidity		95%				
Ambient air temperature around the device	Operation	°C	0...+ 45 without derating Up to + 55°C with current derating of 2% per °C above 45°C			
	Storage	°C	- 25...+ 70			
Isolation class		F				
Clearance distance in air		mm	5.5 conforming to IEC 60664			
Leakage distance in air		mm	11.5 conforming to IEC 60664			
Maximum operating altitude		m	1000 without derating 1000...3000 with current derating of 1% per additional 100 m			
Voltage drop		Between 3% and 5% of the nominal supply voltage. Values higher than this will cause loss of torque.				
Maximum current		1.65 x nominal current for 60 seconds				

Connection characteristics			
Maximum connection capacity and tightening torque	VW3 A58501		16 mm ² , (AWG 4) 1.2...1.4 Nm
	VW3 A58502		6 mm ² , (AWG 8) 0.8...1 Nm
	VW3 A4 551, 552		2.5 mm ² , (AWG 12) 0.4...0.6 Nm
	VW3 A4 553		6 mm ² , (AWG 8) 0.8...1 Nm
	VW3 A4 554		16 mm ² , (AWG 4) 1.2...1.4 Nm
	VW3 A4 555		35 mm ² , (AWG 0) 2.5...3 Nm
	VW3 A4 556		Connected on a bar, Ø 6.5 mm -
	VW3 A4 557, 558		Connected on a bar, Ø 9 mm -
	VW3 A4 559...561		Connected on a bar, Ø 11 mm -
	VW3 A4 564, 565		Connected on a bar, Ø 13 mm -
	VW3 A4 568		Connected on a bar, Ø 11 mm -
	VW3 A4 569		Connected on a bar, Ø 13 mm -

Variable speed drives for asynchronous motors

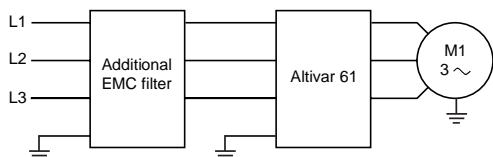
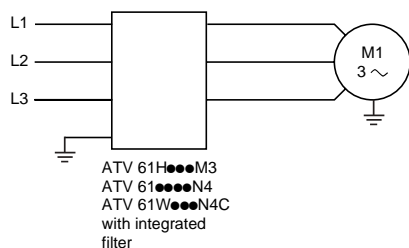
Altivar 61: Reduction of current harmonics
Option: Line chokes

Line chokes									
For drives	Line supply Line Isc	Line choke				Number required per drive	Reference	Weight	
		Inductance value	Nominal current	Saturation current	Loss				
	kA	mH	A	A	W			kg	
Single phase supply voltage: 200...240 V 50/60 Hz									
ATV 61HU40M3	5	2	25	–	45	1	VW3 A58501	3.500	
ATV 61HU55M3	5	1	45	–	50	1	VW3 A58502	3.500	
ATV 61HU75M3	22	1	45	–	50	1	VW3 A58502	3.500	
3-phase supply voltage: 200...240 V 50/60 Hz									
ATV 61H075M3	5	10	4	–	45	1	VW3 A4 551	1.500	
ATV 61HU15M3, HU22M3	5	4	10	–	65	1	VW3 A4 552	3.000	
ATV 61HU30M3	5	2	16	–	75	1	VW3 A4 553	3.500	
ATV 61HU40M3	5	1	30	–	90	1	VW3 A4 554	6.000	
ATV 61HU55M3	22	1	30	–	90	1	VW3 A4 554	6.000	
ATV 61HU75M3, HD11M3X	22	0.5	60	–	94	1	VW3 A4 555	11.000	
ATV 61HD15M3X	22	0.3	100	–	260	1	VW3 A4 556	16.000	
ATV 61HD18M3X...HD45M3X	22	0.15	230	–	400	1	VW3 A4 557	45.000	
ATV 61HD55M3XD	35	0.066	344	685	258	1	VW3 A4 561	47.000	
ATV 61HD75M3XD	35	0.066	344	685	258	1	VW3 A4 561	47.000	
ATV 61HD90M3XD	35	0.038	613	1150	307	1	VW3 A4 564	73.000	
3-phase supply voltage: 380...480 V 50/60 Hz									
ATV 61H075N4, HU15N4	5	10	4	–	45	1	VW3 A4 551	1.500	
ATV 61HU22N4...HU40N4	5	4	10	–	65	1	VW3 A4 552	3.000	
ATV 61HU55N4, HU75N4	22	2	16	–	75	1	VW3 A4 553	3.500	
ATV 61HD11N4, HD15N4	22	1	30	–	90	1	VW3 A4 554	6.000	
ATV 61HD18N4, HD22N4	22	0.5	60	–	94	1	VW3 A4 555	11.000	
ATV 61HD30N4...HD55N4	22	0.3	100	–	260	1	VW3 A4 556	16.000	
ATV 61HD75N4	22	0.15	230	–	400	1	VW3 A4 557	45.000	
ATV 61HD90N4D	35	0.155	184	370	220	1	VW3 A4 558	31.000	
ATV 61HC11N4D	35	0.12	222	445	230	1	VW3 A4 559	35.000	
ATV 61HC13N4D	35	0.098	264	530	245	1	VW3 A4 560	43.000	
ATV 61HC16N4D	50	0.085	300	570	268	1	VW3 A4 568	46.000	
ATV 61HC22N4D	Motor P 200 kW	50	0.066	344	685	258	1	VW3 A4 561	47.000
	Motor P 220 kW	50	0.060	450	849	300	1	VW3 A4 569	70.000
ATV 61HC25N4D		50	0.060	450	849	300	1	VW3 A4 569	70.000
ATV 61HC31N4D		50	0.038	613	1150	307	1	VW3 A4 564	73.000
ATV 61HC40N4D		50	0.032	720	1352	428	1	VW3 A4 565	82.000
ATV 61HC50N4D		50	0.060	450	849	300	2	VW3 A4 569	70.000
ATV 61HC63N4D		50	0.038	613	1150	307	2	VW3 A4 564	73.000

Variable speed drives for asynchronous motors

Altivar 61

Option: additional EMC input filters



Integrated filters

The Altivar 61 drive, except for the ATV 61H●●●M3X, has built-in radio interference input filters to meet the EMC standard for variable speed electrical power drive “products” IEC/EN 61800-3, edition 2, category C2 or C3 in environment 1 or 2 and to comply with the European directive on EMC (electromagnetic compatibility).

Drives	Maximum length of shielded cable according to EN 55011, class A (1)			
	Group 1 (2)		Group 2 (2)	
	LF (3)	HF (3)	LF (3)	HF (3)
	m	m	m	m
ATV 61H075M3...HU22M3	10	5	–	–
ATV 61HU30M3...HU75M3	–	–	10	5
ATV 61H075N4...HU40N4	10	5	–	–
ATV 61HU55N4...HD15N4	–	–	10	5
ATV 61HD18N4...HC63N4	–	–	50	25
ATV 61W●●●N4	80	50	–	–
ATV 61W●●●N4C	80	50	20	5

Additional EMC input filters

Applications

Additional EMC input filters can be used to meet more stringent requirements and are designed to cut down conducted emissions on the line supply below the limits of standard EN 55011 group 1, class A or B (2).

For the ATV 61H●●●M3, ATV 61HD11M3X...HD45M3X and ATV 61H075N4...HD75N4 drives, the additional EMC filters can be mounted next to or under the device. They act as a support for the drives and are attached to them via tapped holes.

For the ATV61HD90N4...HC63N4 drives, the additional EMC filters are only mounted at the side of the drives.

Use according to the type of network

Use of these additional filters is only possible on TN (neutral connection) and TT (neutral to earth) type networks.

Standard IEC/EN 61800-3, appendix D2.1, states that on IT networks (impedance or isolated neutral), filters can cause permanent insulation monitors to operate in a random manner.

In addition, the effectiveness of additional filters on this type of network depends on the type of impedance between neutral and earth, and therefore cannot be predicted. In the case of a machine which needs to be installed on an IT network, one solution consists of inserting an isolation transformer and placing the machine locally on a TN or TT network.

(1) Maximum lengths for shielded cables connecting motors to drives, for a factory-set switching frequency of 2.5 or 4 kHz, depending on the rating (see page 10). If motors are connected in parallel, it is the total length that should be taken into account.

(2) See page 8.

(3) LF: low switching frequency. HF: high switching frequency. These frequencies depend on the drive rating.

Drives	Switching frequency	
	LF	HF
	kHz	kHz
ATV 61H●●●M3	4	4.1...16
ATV 61H075N4...HD30N4		
ATV 61HD37N4...HD75N4	2...2.5	2.6...12
ATV 61HD90N4...HC63N4	2...4	4.1...8
ATV 61W075N4...WD45N4	8	8.1...16
ATV 61W075N4C...WD45N4C	8	8.1...16
ATV 61WD55N4...WD90N4	4	4.1...16
ATV 61WD55N4C...WD90N4C	4	4.1...16

Variable speed drives for asynchronous motors

Altivar 61

Option: additional EMC input filters

General characteristics			
Type of EMC filter		VW3 A4 401...409	VW3 A4 410...413
Conformity to standards		EN 133200	
Degree of protection		IP 20 and IP 41 on upper part	IP 00 IP 30 with VW3 A9 601, 602 kits
Maximum relative humidity		93% without condensation or dripping water conforming to IEC 68-2-3	
Ambient temperature around the unit	Operation	°C	- 10...+ 50
	Storage	°C	- 40...+ 65
Maximum operating altitude		m	1000 without derating 1000...3000 derating the current by 1% per additional 100 m. Limited to 2000 m for the "Corner Grounded" distribution network
Vibration resistance		1.5 mm peak to peak from 3...13 Hz, 1 gn peak from 13...150 Hz, in accordance with IEC 60068-2-6	
Shock resistance		15 gn for 11 ms in accordance with IEC/EN 60068-2-27	
Maximum nominal voltage	50/60 Hz three phase	V	240 + 10 % 480 + 10 %
Connection characteristics			
Maximum connection capacity and tightening torque	VW3 A4 401	4 mm ² (AWG 10). 0.6 Nm	
	VW3 A4 402	6 mm ² (AWG 8). 1.5 Nm	
	VW3 A4 403	10 mm ² (AWG 6). 1.5 Nm	
	VW3 A4 404	16 mm ² (AWG 4). 2 Nm	
	VW3 A4 405...407	50 mm ² (AWG 0). 6 Nm	
	VW3 A4 408	150 mm ² (300 kcmil). 25 Nm	
	VW3 A4 409	25 mm ² (AWG 2). 4 Nm	
	VW3 A4 410...412	Bar connection, M10 -	
	VW3 A4 413	Bar connection, 2 x M12 -	

Variable speed drives for asynchronous motors

Altivar 61

Option: additional EMC input filters

Additional EMC input filters

Drives	Maximum length of shielded cable (1)				In (2)	II (3)	Loss (4)	Reference	Weight
	EN 55011 (5) class A Gr1		EN 55011 (5) class B Gr1						
	LF (6)	HF (6)	LF (6)	HF (6)	A	mA	W		
	m	m	m	m					kg
Three phase supply voltage: 200...240 V 50/60 Hz									
ATV 61H075M3, HU15M3	100	50	50	20	12	4	10	VW3 A4 401	2.200
ATV 61HU22M3...HU40M3	100	50	50	20	26	4.4	18	VW3 A4 402	4.000
ATV 61HU55M3	100	50	50	20	35	3	24	VW3 A4 403	5.800
ATV 61HU75M3	100	50	50	20	46	10	19	VW3 A4 404	7.000
ATV 61HD11M3X, HD15M3X	200	100	50	25	72	33	34	VW3 A4 405	12.000
ATV 61HD18M3X, HD22M3X	200	100	50	25	90	33	34	VW3 A4 406	15.000
ATV 61HD30M3X...HD45M3X	200	100	50	25	180	80	58	VW3 A4 408	40.000
ATV 61HD55M3X, HD75M3X	100	50	50	25	273	285	60	VW3 A4 410	22.000
ATV 61HD90M3X	100	50	50	25	336	500	125	VW3 A4 411	22.000
Three phase supply voltage: 380...480 V 50/60 Hz									
ATV 61H075N4...HU22N4	100	50	50	20	12	7	5	VW3 A4 401	2.200
ATV 61HU30N4, HU40N4	100	50	50	20	26	8	6	VW3 A4 402	4.000
ATV 61HU55N4, HU75N4	100	50	50	20	35	7	14	VW3 A4 403	5.800
ATV 61HD11N4	100	50	50	20	46	14	13	VW3 A4 404	7.000
ATV 61HD15N4 (7), HD18N4	300	200	100	100	72	60	14	VW3 A4 405	12.000
ATV 61HD22N4	300	200	100	100	90	60	11	VW3 A4 406	15.000
ATV 61HD30N4, HD37N4	300	200	100	100	92	60	30	VW3 A4 407	17.000
ATV 61HD45N4...HD75N4	300	200	100	100	180	140	58	VW3 A4 408	40.000
ATV 61HD90N4...HC16N4	300	150	50	25	273	500	60	VW3 A4 410	22.000
ATV 61HC22N4...HC31N4	300	150	50	25	546	500	125	VW3 A4 411	25.000
ATV 61HC40N4, HC50N4	300	150	50	25	728	500	210	VW3 A4 412	25.000
ATV 61HC63N4	300	150	50	25	1456	200	380	VW3 A4 413	34.000

(1) The filter selection tables give the maximum lengths for shielded cables connecting motors to drives for a switching frequency of 1 to 16 kHz (see page 10). These limits are given as examples only as they vary depending on the stray capacitance of the motors and the cables used. If motors are connected in parallel, it is the total length that should be taken into account.

(2) Filter nominal current.

(3) Maximum earth leakage current at 230 V and at 400 V 50 Hz on a TT network.

(4) Via thermal dissipation.

(5) See page 8.

(6) LF: low switching frequency. HF: high switching frequency. These frequencies depend on the drive rating:

For drives	Switching frequency	
	LF	HF
	kHz	kHz
ATV 61H●●●M3 ATV 61H075N4...HD11N4	4	4.1...16
ATV 61HD11M3X, HD15M3X ATV 61HD15N4...HD30N4	3.5...4	4.1...12
ATV 61HD18M3X...HD45M3X ATV 61HD37N4...HD75N4	2...2.5	2.6...12
ATV 61HD55M3X...HD90M3X ATV 61HD90N4...HC63N4	2.5...4	4.1...8
	2...4	4.1...8

(7) It is possible to use a special filter VW3 A4 409 with a leakage current II (3) of 14 mA, which enables a maximum motor cable length of 100 m.

Variable speed drives for asynchronous motors

Altivar 61

Option: additional EMC input filters

IP 30 protection kits

Description	For filters	Reference	Weight kg
Mechanical device consisting of an IP 30 cover and cable clips	VW3 A4 410, 411	VW3 A9 601	—
	VW3 A4 412, 413	VW3 A9 602	—

Variable speed drives for asynchronous motors

Altivar 61: Output filters

The Altivar 61 drive includes as standard a software function used to limit overvoltages at the motor terminals.
Depending on the cable lengths or the type of application, it may be necessary to use output filters:

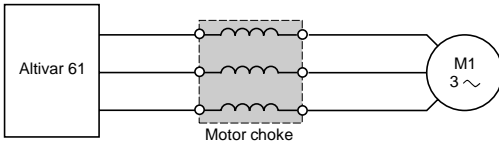
- Motor chokes used to limit the dv/dt
- Sinus filters that are particularly effective for long cable runs

Cable length (2)	10...50 m	50...100 m	100...150 m	150...300 m	300...600 m	600...1000 m
Shielded cable						
ATV 61H●●●M3 ATV 61H075N4...HD15N4	Software function (1)	Motor choke		–		
ATV 61H●●●M3X ATV 61HD18N4...HC63N4	Software function (1)	Motor choke		–		
Unshielded cable						
ATV 61H075M3, HU15M3 ATV 61H075N4...HU22N4	Software function (1)	Motor choke or sinus filter		–		
ATV 61HU22M3...HU30M3 ATV 61HU30N4...HU55N4	Software function (1)	Motor choke			Sinus filter	–
ATV 61HU40M3...HU75M3 ATV 61HU75N4...HD15N4	Software function (1)	Motor choke			Sinus filter	
ATV 61HD11M3X...HU45M3X ATV 61HU18N4...HD75N4	Software function (1)			Motor choke	Sinus filter	
ATV 61HD55M3X...HD90M3X ATV 61HD90N4...HC63N4	Software function (1)			Motor choke	2 motor chokes connected in series	–

(1) The software function limits the overvoltage at the motor terminals to twice the DC bus voltage.
For any application with braking cycles, the DC bus voltage rises to more than the supply voltage multiplied by $\sqrt{2}$.
You must check the electrical characteristics of the motor before using this function.

(2) For an application with several motors connected in parallel, the cable length must include all tap-offs.
Recommended cable types:
 ■ Shielded cables: "GORSE" cable, type GUOSTV-LS/LH; "PROTOFLEX" cable, type EMV2YSL CY,
 ■ Unshielded cables: "GORSE" cable, type H07 RN-F4GXX; "BELDEN" cable, type 2950X

Motor chokes



Altivar 61 drives have been designed for operation with the following maximum motor cable lengths:

For drives	Maximum length of motor cable (1)	
	Shielded cable	Unshielded cable
	m	m
ATV 61H●●●M3	≥ 50	≥ 100
ATV 61HD11M3X, HD15M3X		
ATV 61H075N4...HD18N4		
ATV 61HD18M3X...HD90M3X	≥ 100	≥ 200
ATV 61HD22N4...HC63N4		

The motor choke enables operation beyond these motor cable length limits and/or can limit the dv/dt to 500 V/μs at the motor terminals.

It also enables:

- Overvoltages on the motor terminals to be limited as follows:
 - 1000 V to 400 V ~ (rms value)
 - 1150 V to 460 V ~ (rms value)
- Interference caused by opening a contactor placed between the filter and the motor to be filtered
- The motor earth leakage current to be reduced

General characteristics (2)

Type of choke		VW3 A5 101...103	VW3 A5 104...108
Maximum drive switching frequency	ATV 61H●●●M3	kHz	4
	ATV 61HD11M3X, HD15M3X		
	ATV 61H075N4...HD30N4	kHz	2.5
	ATV 61HD18M3X...HD90M3X		
ATV 61HD37N4...HC63N4			
Maximum drive output frequency		Hz	100
Degree of protection		IP 00	IP 00 IP 20 with kits VW3 A9 612 and VW3 A9 613
Thermal protection			By temperature controlled switch
Temperature controlled switch (3)	Tripping temperature	°C	125
	Maximum voltage	V	250 ~
	Maximum current	A	0.5
Ambient air temperature around the device	Operation	°C	- 10...+ 50
	Storage	°C	- 25...+ 70

Connection characteristics

Maximum connection capacity and tightening torque	VW3 A5 101, 102	10 mm ² (AWG 6) 1.5 Nm
	VW3 A5 103	Connected on a bar, Ø 11 mm -
	VW3 A5 104	Connected on a tag connector, M10 -
	VW3 A5 105, 106	Connected on a tag connector, M12 -
	VW3 A5 107, 108	Connected on a tag connector, 2 x M12 -

(1) These values are given for a maximum switching frequency of 2.5 or 4 kHz depending on the rating.

(2) Choke performance is ensured by not exceeding the cable lengths between the motor and the drive given in the table above. For an application with several motors connected in parallel, the cable length must include all tap-offs. If a cable longer than that recommended is used, the motor chokes may overheat.

(3) The contact should be connected in sequence (used for signalling or controlling the line contactor).

Variable speed drives for asynchronous motors

Altivar 61: Output filters
Option: Motor chokes



VW3 A5 101

Motor chokes

For drives	Maximum length of motor cable (1)		Loss W	Nominal current A	Sold in lots of	Unit reference	Weight kg	
	Shielded	Un- shielded						
	m	m						
3-phase supply voltage: 200...240 V 50/60 Hz								
ATV 61H075M3...HU22M3	150	300	150	12	–	VW3 A5 101	5.500	
ATV 61HU30M3...HU75M3	200	260	250	48	–	VW3 A5 102	8.000	
	300	300	350	90	–	VW3 A5 103	10.000	
ATV 61HD11M3X...HD22M3X	150	300	350	90	–	VW3 A5 103	10.000	
ATV 61HD30M3X...HD45M3X	150	300	430	215	3	VW3 A5 104	17.300	
ATV 61HD55M3X, HD75M3X	150	300	475	314	3	VW3 A5 105	29.600	
ATV 61HD90M3X	250	300	530	481	3	VW3 A5 106	44.400	
3-phase supply voltage: 380...480 V 50/60 Hz								
ATV 61H075N4...HU40N4	75	90	150	12	–	VW3 A5 101	5.500	
	85	95	250	48	–	VW3 A5 102	8.000	
	160	200	350	90	–	VW3 A5 103	10.000	
ATV 61HU55N4...HD18N4	85	95	250	48	–	VW3 A5 102	8.000	
	160	200	350	90	–	VW3 A5 103	10.000	
	200	300	430	215	3	VW3 A5 104	17.300	
ATV 61HD22N4...HD30N4	140	170	350	90	–	VW3 A5 103	10.000	
	150	300	430	215	3	VW3 A5 104	17.300	
ATV 61HD37N4	97	166	350	90	–	VW3 A5 103	10.000	
	200	300	430	215	3	VW3 A5 104	17.300	
ATV 61HD45N4...HD75N4	150	300	430	215	3	VW3 A5 104	17.300	
ATV 61HD90N4	200	300	430	215	3	VW3 A5 104	17.300	
ATV 61HC11N4, HC13N4	150	250	475	314	3	VW3 A5 105	29.600	
ATV 61HC16N4	250	300	530	481	3	VW3 A5 106	44.400	
ATV 61HC22N4	250	300	530	481	3	VW3 A5 106	44.400	
ATV 61HC25N4	200	250	598	759	3	VW3 A5 107	64.500	
ATV 61HC31N4	200	250	598	759	3	VW3 A5 107	64.500	
ATV 61HC40N4	Motor P 355 kW	200	250	598	759	3	VW3 A5 107	64.500
		250	300	682	1188	3	VW3 A5 108	99.200
ATV 61HC50N4	Motor P 400 kW	250	300	682	1188	3	VW3 A5 108	99.200
ATV 61HC63N4		250	300	682	1188	3	VW3 A5 108	99.200

(1) Maximum length given for a switching frequency of 2.5 or 4 kHz depending on the rating of the fan, see Characteristics on page 79.

Variable speed drives for asynchronous motors

Altivar 61: Output filters

Option: Motor chokes

IP 20 protection kits			
Description	For filters	Reference	Weight kg
Mechanical device consisting of an IP 20 cover and cable clips	VW3 A5 104, 105	VW3 A9 612	–
	VW3 A5 106...108	VW3 A9 613	–

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