ACS880-07CLC drives energy efficiency data (EU ecodesign) supplement

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This data sheet is a supplement for *ACS880-07CLC drives HW manual* (3AXD50000131457 [English]) and shows the energy efficiency data according to IEC 61800-9-2.

Part load losses (%)

ACS880-07CLC- ...	Output power (kVA)	Pn, IEC (kW)	IE class [1]	Stand-by losses (W) [2]	Part load losses (%) [3]							
					(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
U_n = 3~690 V AC, 6-pulse												
0390A-7	466	355	IE2	108	1.7	1.6	1.5	1.1	1.1	1.0	0.9	0.9
0430A-7	514	400	IE2	108	1.7	1.6	1.5	1.1	1.0	1.0	0.8	0.8
0480A-7	574	450	IE2	108	1.7	1.6	1.5	1.0	1.0	0.9	0.8	0.8
0530A-7	633	500	IE2	108	1.7	1.6	1.5	1.0	1.0	0.9	0.8	0.7
0600A-7	717	560	IE2	108	1.6	1.5	1.4	0.9	0.9	0.9	0.7	0.7
0670A-7	801	630	IE2	108	1.6	1.5	1.4	0.9	0.9	0.8	0.7	0.7
0750A-7	896	710	IE2	108	1.6	1.5	1.4	0.9	0.9	0.8	0.7	0.7
0850A-7	1016	800	IE2	108	1.7	1.6	1.4	0.9	0.9	0.8	0.7	0.6
1030A-7	1231	1000	IE2	203	1.5	1.4	1.3	0.9	0.8	0.8	0.6	0.6
1170A-7	1398	1100	-	203	1.5	1.4	1.3	0.8	0.8	0.8	0.6	0.6
1310A-7	1566	1200	-	203	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
1470A-7	1757	1400	-	203	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
1660A-7	1984	1600	-	203	1.6	1.5	1.3	0.8	0.8	0.7	0.6	0.5
1940A-7	2319	1800	-	298	1.6	1.5	1.3	0.9	0.8	0.8	0.7	0.6
2180A-7	2605	2000	-	298	1.6	1.5	1.4	0.9	0.8	0.8	0.6	0.6
2470A-7	2952	2300	-	298	1.6	1.5	1.4	0.9	0.8	0.8	0.6	0.6
2880A-7	3442	2700	-	393	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
3260A-7	3896	3000	-	393	1.6	1.5	1.4	0.8	0.8	0.7	0.6	0.6
U_n = 3~690 V AC, 12-pulse												
0530A-7 +A004	633	500	IE2	108	1.7	1.6	1.5	1.0	1.0	0.9	0.8	0.8
0600A-7 +A004	717	560	IE2	108	1.6	1.5	1.4	1.0	0.9	0.9	0.8	0.7
0670A-7 +A004	801	630	IE2	108	1.6	1.5	1.4	0.9	0.9	0.9	0.7	0.7
0750A-7 +A004	896	710	IE2	108	1.6	1.5	1.4	0.9	0.9	0.8	0.7	0.7

ACS880-07CLC- ...	Output power (kVA)	Pn, IEC (kW)	IE class[1]	Stand-by losses (W)[2]	Part load losses (%)[3]							
					(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
0850A-7 +A004	1016	800	IE2	108	1.7	1.6	1.5	0.9	0.9	0.8	0.7	0.6
1030A-7 +A004	1231	1000	IE2	203	1.5	1.4	1.3	0.9	0.8	0.8	0.6	0.6
1170A-7 +A004	1398	1100	-	203	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
1310A-7 +A004	1566	1200	-	203	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
1470A-7 +A004	1757	1400	-	203	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
1660A-7 +A004	1984	1600	-	203	1.6	1.5	1.3	0.8	0.8	0.7	0.6	0.5
1940A-7 +A004	2319	1800	-	298	1.6	1.5	1.4	0.9	0.8	0.8	0.7	0.6
2180A-7 +A004	2605	2000	-	298	1.6	1.5	1.4	0.9	0.8	0.8	0.6	0.6
2470A-7 +A004	2952	2300	-	298	1.6	1.5	1.4	0.9	0.8	0.8	0.6	0.6
2880A-7 +A004	3442	2700	-	393	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
3260A-7 +A004	3896	3000	-	393	1.6	1.5	1.4	0.8	0.8	0.7	0.6	0.6
3580A-7 +A004	4279	3400	-	488	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.6
4050A-7 +A004	4840	3800	-	488	1.6	1.5	1.3	0.8	0.8	0.7	0.6	0.6
4840A-7 +A004	5784	4400	-	584	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.5
5650A-7 +A004	6752	5200	-	679	1.5	1.4	1.3	0.8	0.7	0.7	0.5	0.5
6460A-7 +A004	7720	6000	-	774	1.5	1.4	1.3	0.8	0.7	0.7	0.5	0.5
U_n = 3~690 V AC, 24-pulse												
2470A-7 +A006	2952	2300	-	298	1.6	1.5	1.4	0.9	0.8	0.8	0.6	0.6
3260A-7 +A006	3896	3000	-	393	1.6	1.5	1.4	0.8	0.8	0.7	0.6	0.6
4840A-7 +A006	5784	4400	-	584	1.5	1.4	1.3	0.8	0.8	0.7	0.6	0.5
5650A-7 +A006	6752	5200	-	679	1.5	1.4	1.3	0.8	0.7	0.7	0.5	0.5
6460A-7 +A006	7720	9200	-	774	1.5	1.4	1.3	0.8	0.7	0.7	0.5	0.5

1) The drives rated for operating a motor with the rated output power higher than 1000 kW are not in the scope of the EU ecodesign requirements (Regulation EU/2019/1781). In these cases, energy efficiency data/class is not provided.

2) Standby losses are generated when the drive is powered up, but not providing current to the load.

3) Drive losses as a percentage of the rated apparent output power in 8 operating points (relative motor stator frequency; relative torque-producing current).

Part load losses (W)

ACS880-07CLC-...	Frame size	Part load losses (W)							
		(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
U_n = 3~690 V AC, 6-pulse									
0390A-7	1xD8D + 1xR8i	7872	7459	7006	5088	4929	4754	4170	4078
0430A-7	1xD8D + 1xR8i	8588	8139	7615	5407	5230	5031	4365	4261
0480A-7	1xD8D + 1xR8i	9529	9035	8416	5821	5620	5388	4614	4496
0530A-7	1xD8D + 1xR8i	10524	9981	9259	6251	6025	5759	4871	4736
0600A-7	1xD8D + 1xR8i	11475	10783	10010	6791	6501	6201	5237	5082
0670A-7	1xD8D + 1xR8i	12900	12113	11203	7407	7077	6730	5606	5429
0750A-7	1xD8D + 1xR8i	14598	13717	12640	8135	7759	7356	6039	5834
0850A-7	1xD8D + 1xR8i	16966	15890	14572	9103	8665	8184	6605	6363
1030A-7	2xD8D + 2xR8i	18769	17713	16331	10568	10130	9619	7913	7652
1170A-7	2xD8D + 2xR8i	20681	19338	17851	11648	11085	10506	8643	8343
1310A-7	2xD8D + 2xR8i	23503	21971	20210	12873	12230	11556	9378	9033
1470A-7	2xD8D + 2xR8i	26860	25141	23052	14317	13583	12799	10239	9840
1660A-7	2xD8D + 2xR8i	31304	29218	26678	16141	15288	14357	11307	10838
1940A-7	3xD8D + 3xR8i	36079	33815	31223	20428	19476	18484	15274	14764
2180A-7	3xD8D + 3xR8i	41085	38541	35460	22583	21497	20339	16560	15971
2470A-7	3xD8D + 3xR8i	47833	44738	40976	25367	24100	22719	18197	17501
2880A-7	4xD8D + 4xR8i	52942	49583	45532	28603	27170	25645	20672	19895
3260A-7	4xD8D + 4xR8i	61717	57645	52708	32223	30553	28738	22797	21881
U_n = 3~690 V AC, 12-pulse									
0530A-7 +A004	2xD8D + 1xR8i	10631	10149	9463	6442	6232	5975	5088	4955
0600A-7 +A004	2xD8D + 1xR8i	11549	10936	10209	6974	6704	6416	5452	5301
0670A-7 +A004	2xD8D + 1xR8i	12932	12249	11396	7581	7277	6944	5820	5647
0750A-7 +A004	2xD8D + 1xR8i	14584	13842	12837	8307	7964	7579	6262	6063
0850A-7 +A004	2xD8D + 1xR8i	16862	15985	14759	9258	8862	8404	6825	6591
1030A-7 +A004	2xD8D + 2xR8i	18738	17682	16300	10537	10098	9588	7882	7621
1170A-7 +A004	2xD8D + 2xR8i	20649	19306	17820	11616	11053	10475	8611	8311
1310A-7 +A004	2xD8D + 2xR8i	23472	21939	20178	12842	12198	11525	9347	9001
1470A-7 +A004	2xD8D + 2xR8i	26829	25110	23020	14285	13551	12767	10207	9808
1660A-7 +A004	2xD8D + 2xR8i	31273	29187	26647	16109	15257	14326	11276	10807
1940A-7 +A004	4xD8D + 3xR8i	35967	33855	31343	20519	19604	18631	15422	14918
2180A-7 +A004	4xD8D + 3xR8i	40884	38549	35570	22658	21617	20484	16706	16125
2470A-7 +A004	4xD8D + 3xR8i	47470	44694	41062	25407	24198	22850	18329	17643
2880A-7 +A004	4xD8D + 4xR8i	52889	49531	45479	28551	27117	25593	20620	19843
3260A-7 +A004	4xD8D + 4xR8i	61664	57592	52655	32171	30501	28686	22745	21829
3580A-7 +A004	6xD8D + 5xR8i	64810	60926	56032	35002	33284	31425	25258	24304
4050A-7 +A004	6xD8D + 5xR8i	75437	70811	64862	39439	37446	35238	27878	26755
4840A-7 +A004	6xD8D + 6xR8i	89286	83484	76281	46026	43596	40941	32170	30829
5650A-7 +A004	8xD8D + 7xR8i	103484	96935	88605	53224	50425	47336	37086	35517

ACS880-07CLC-...	Frame size	Part load losses (W)							
		(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
6460A-7 +A004	8xD8D + 8xR8i	118151	110208	100511	60109	56831	53255	41532	39724
U_n = 3~690 V AC, 24-pulse									
2470A-7 +A006	4xD8D + 3xR8i	47470	44694	41062	25407	24198	22850	18329	17643
3260A-7 +A006	4xD8D + 4xR8i	61664	57592	52655	32171	30501	28686	22745	21829
4840A-7 +A006	8xD8D + 6xR8i	89286	83484	76281	46026	43596	40941	32170	30829
5650A-7 +A006	8xD8D + 7xR8i	103484	96935	88605	53224	50425	47336	37086	35517
6460A-7 +A006	8xD8D + 8xR8i	118151	110208	100511	60109	56831	53255	41532	39724

Efficiency (%)

ACS880-07CLC- ...	Efficiency (%) [1]							
	(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
U_n = 3~690 V AC, 6-pulse								
0390A-7	97.9	96.5	93.3	97.3	95.4	91.1	92.6	85.9
0430A-7	97.9	96.5	93.4	97.4	95.5	91.5	92.9	86.5
0480A-7	97.9	96.5	93.4	97.5	95.7	91.8	93.3	87.2
0530A-7	97.9	96.5	93.5	97.6	95.8	92.0	93.5	87.7
0600A-7	98.0	96.7	93.7	97.6	96.0	92.4	93.8	88.3
0670A-7	98.0	96.6	93.7	97.7	96.1	92.6	94.1	88.7
0750A-7	98.0	96.6	93.7	97.7	96.2	92.7	94.3	89.1
0850A-7	97.9	96.5	93.6	97.8	96.2	92.9	94.5	89.5
1030A-7	98.1	96.8	94.0	97.9	96.4	93.1	94.5	89.6
1170A-7	98.1	96.9	94.2	97.9	96.5	93.3	94.7	89.9
1310A-7	98.1	96.9	94.2	98.0	96.5	93.4	94.9	90.2
1470A-7	98.1	96.8	94.1	98.0	96.6	93.5	95.0	90.5
1660A-7	98.0	96.7	93.9	98.0	96.6	93.5	95.1	90.7
1940A-7	98.1	96.8	93.9	97.8	96.3	92.9	94.4	89.3
2180A-7	98.0	96.7	93.9	97.8	96.4	93.1	94.6	89.7
2470A-7	98.0	96.6	93.8	97.9	96.4	93.2	94.7	90.0
2880A-7	98.1	96.8	94.0	97.9	96.5	93.4	94.9	90.2
3260A-7	98.0	96.7	93.9	97.9	96.5	93.4	95.0	90.5
U_n = 3~690 V AC, 12-pulse								
0530A-7 +A004	97.9	96.4	93.3	97.5	95.7	91.7	93.3	87.2
0600A-7 +A004	98.0	96.6	93.6	97.6	95.9	92.1	93.6	87.8
0670A-7 +A004	98.0	96.6	93.6	97.6	96.0	92.4	93.9	88.3
0750A-7 +A004	98.0	96.6	93.6	97.7	96.1	92.5	94.1	88.7
0850A-7 +A004	97.9	96.5	93.5	97.7	96.2	92.7	94.3	89.2
1030A-7 +A004	98.1	96.8	94.0	97.9	96.4	93.1	94.6	89.6
1170A-7 +A004	98.1	96.9	94.2	97.9	96.5	93.3	94.8	90.0
1310A-7 +A004	98.1	96.9	94.2	98.0	96.6	93.4	94.9	90.3
1470A-7 +A004	98.1	96.8	94.1	98.0	96.6	93.5	95.0	90.5
1660A-7 +A004	98.0	96.7	94.0	98.0	96.6	93.6	95.1	90.7
1940A-7 +A004	98.1	96.8	93.9	97.8	96.3	92.9	94.4	89.2
2180A-7 +A004	98.0	96.7	93.9	97.8	96.3	93.0	94.5	89.6
2470A-7 +A004	98.0	96.6	93.8	97.9	96.4	93.1	94.7	89.9
2880A-7 +A004	98.1	96.8	94.0	97.9	96.5	93.4	94.9	90.2
3260A-7 +A004	98.0	96.7	93.9	97.9	96.5	93.4	95.0	90.5
3580A-7 +A004	98.1	96.8	94.1	98.0	96.6	93.5	95.0	90.4
4050A-7 +A004	98.0	96.7	94.0	98.0	96.6	93.5	95.1	90.6
4840A-7 +A004	98.1	96.8	94.1	98.0	96.7	93.7	95.2	90.9
5650A-7 +A004	98.1	96.8	94.1	98.0	96.7	93.7	95.3	91.0

ACS880-07CLC- ...	Efficiency (%) [1]							
	(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
6460A-7 +A004	98.1	96.8	94.1	98.1	96.7	93.8	95.4	91.2
U_n = 3~690 V AC, 24-pulse								
2470A-7 +A006	98.0	96.6	93.8	97.9	96.4	93.1	94.7	89.9
3260A-7 +A006	98.0	96.7	93.9	97.9	96.5	93.4	95.0	90.5
4840A-7 +A006	98.1	96.8	94.1	98.0	96.7	93.7	95.2	90.9
5650A-7 +A006	98.1	96.8	94.1	98.0	96.7	93.7	95.3	91.0
6460A-7 +A006	98.1	96.8	94.1	98.1	96.7	93.8	95.4	91.2

1) Efficiency of the drive is defined as Eff [%] = $P_{output, drive}$ / ($P_{output, drive}$ + $P_{losses, drive}$). $P_{output, drive}$ is output power of the drive and $P_{losses, drive}$ is power losses of the drive at operating point.

Loss determination

The losses and the IE class of a drive have been determined using the single loss determination method. All calculations have been performed according to requirements in IEC 61800-9-2. The given energy efficiency data is determined based on factory settings of the drive.

The following conditions apply in loss calculations:

1. Losses have been calculated with the following values:

Input voltage U_n	690 V [1]
Input frequency f_n	50 Hz
Rated output frequency f_{out}	50 Hz
Fundamental rated drive output voltage $U_{1,out}$	690 V [1]
Maximum output voltage at operating point 1 $U_{1,out(90;100)}$	621 V

1) U_n, see the data tables.

2. The rated apparent drive output power has been calculated based on nominal output current and fundamental rated output voltage of the drive. Sn = sqrt(3)×I_n×$U_{1,out}$
3. Losses for 0% drive output frequency points have been calculated at 12 Hz.
4. The default factory setting has been used for switching frequency.
5. The stated loss values include uncertainty of used loss determination method.
6. The losses of integrated features (liquid cooling unit, line filters, EMC filters, etc. - see full list below) have been included in the calculations.
7. Standby losses are determined when the drive is not supplying current to the motor but is powered up.

The loss calculation is based on basic drive configuration with no options installed. The following built-in drive components/auxiliaries/features are included in the calculations:

- liquid-cooled cabinet-installed drive, IP42 (UL Type 1)
- aR fuses
- du/dt filters

- common mode filtering
- ACS-AP-W assistant control panel

There is a tool available for advanced ecodesign calculations. You can, for example, define part-load losses in user-defined operating points. See https://ecodesign.drivesmotors.abb.com (Energy efficiency data according to IEC-61800-9-2).