

DIAX03 AC Drives for Continuous Operation (S1)

Selection Data



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Purpose of Documentation	<p>This documentation</p> <ul style="list-style-type: none"> specifies the demands which the drives, entailed in the S1-selection lists, meet. offers an overview of the mechanical coupling options. helps to select an AC drive for continuous operation <p>This documentation helps:</p> <ul style="list-style-type: none"> to record the selection decisions made to quickly contact our Sales Department 									
Record of Revisions	<table border="1"> <thead> <tr> <th>Description</th> <th>Release Date</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>DOK-DIAX03-PRIN*****-AUS1-EN-P</td> <td>02.97</td> <td>first edition</td> </tr> <tr> <td>DOK-DIAX03-PRIN*****-AU02-EN-P</td> <td>06.00</td> <td>revision</td> </tr> </tbody> </table>	Description	Release Date	Notes	DOK-DIAX03-PRIN*****-AUS1-EN-P	02.97	first edition	DOK-DIAX03-PRIN*****-AU02-EN-P	06.00	revision
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Notes

1 Introduction

1.1 Typical demands

Typical demands made of an S1 drive are:

- continuous operations at a constant processing speed,
- exact synchronous operations in all production phases even during runups and deceleration of the machine if several single drives process a web and
- fastest possible standstill of the assemblies in event of failures or dangerous situations.

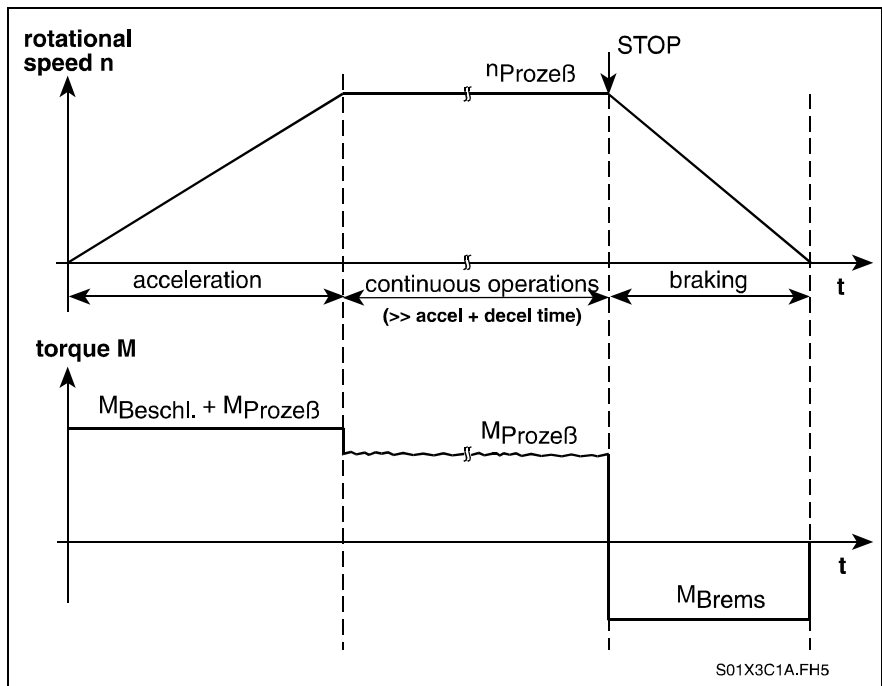


Fig. 1-1: Typical load characteristics of S1 drives

Applications Typical applications are drives in machines that continuously process a web, such as

- press drives
- paper processing machine drives
- textile machine drives
- packaging machine drives

Performance criteria of S1 drives

- High continuous torques for the manufacturing process over the entire rotational speed range
- Overload capabilities for the startup phase of the machine
- Overload capabilities for standard operational standstill of the machine and standstill of the machine in the event of an E-stop
- good smooth running features.

1.2 Physical Selection Criteria

The motor/controller combination is based on the physical demands made of the relevant machine assembly.

The physical demands are derived from:

- Load torque**
 - The load torque during processing speed is caused by friction forces, tension forces, web tension forces and so on. The motor must make available the continuous torque needed for the S1 process at the rotational speed needed for the process.
- Acceleration torque**
 - The needed runup time of the assembly. The existing process forces must be overcome and the rotating mass accelerated. The drive must, for the short duration of the runup, make the needed acceleration torque available.
- Deceleration torque**
 - The needed deceleration time for the standard standstill of the machine as well as for E-stops. The drive must make available the needed deceleration torque for the short duration of the decel procedure.
If deceleration is supported by processing forces, then the acceleration procedure generally determines the required short-term torque.
- Drive dimensioning** See "Dimensioning guidelines for S1 drives", Page 2-5.

1.3 Mechanical Selection Criteria

- The demands made of precision by the relevant machine axis determine the way the motor is mechanically coupled which, in turn, determines the construction of the motor.
- The mounting space and the cooling system of the machine determine the cooling mode of the motor.

Precision and mechanical coupling

The measuring system, its mounting location and type of motor coupling determine the level of precision which can be achieved at the relevant machine axis.

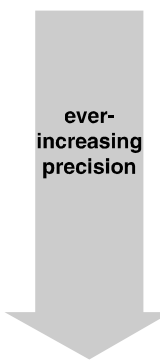
Motor type	Motor	 ever-increasing precision
Motor with gears and digital servo feedback as motor feedback (indirect measuring system)	MDD 2AD ADF	
Motor with gear and loadside mounted external encoder (direct measuring system)	MDD 2AD ADF	
Motor as direct drive with loadside mounted encoder (direct measuring system)	MDD 2AD ADF	
Kit roller motor with encoder mounted loadside (direct measuring system)	MBW	N01X3C1A.FH5

Fig. 1-2: Overview of precision and motor coupling

Motor with gear, indirect measuring system

The measuring system is integrated into the motor (motor feedback). The achievable precision, e.g., in press axes, is primarily determined by the gear (typically four angle minutes).

- air-cooled and uncooled motors: MDD, 2AD
- liquid-cooled motors: MDD...-F, ADF

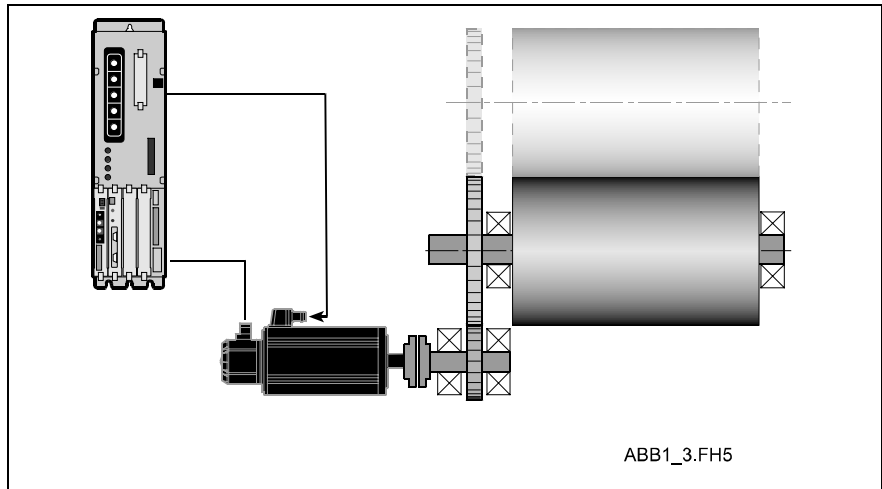


Fig. 1-3: Axis drive with gear and indirect measuring system, e.g., a press roller

Motor with gear, direct measuring system

The measuring system is mounted load side and directly evaluates the axis position. Precision depends on the measuring system used and the maximum possible amplification of the position control loop.

- air-cooled and uncooled motors: MDD, 2AD
- liquid-cooled motors: MDD...-F, ADF

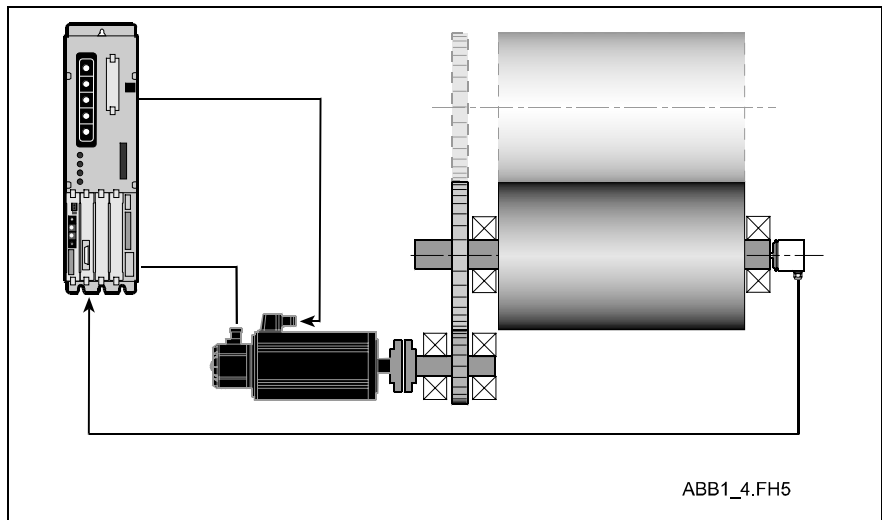


Fig. 1-4: Axis drive with gear and direct measuring system, e.g., press roller

**Motor directly coupled,
direct measuring system**

The measuring system is mounted load side and directly detects axis position. Precision is dependent on the measuring system used and the maximum possible amplification of the position control loop.

- air-cooled and non-cooled motors: MDD, 2AD
- liquid-cooled motors: MDD...-F, ADF

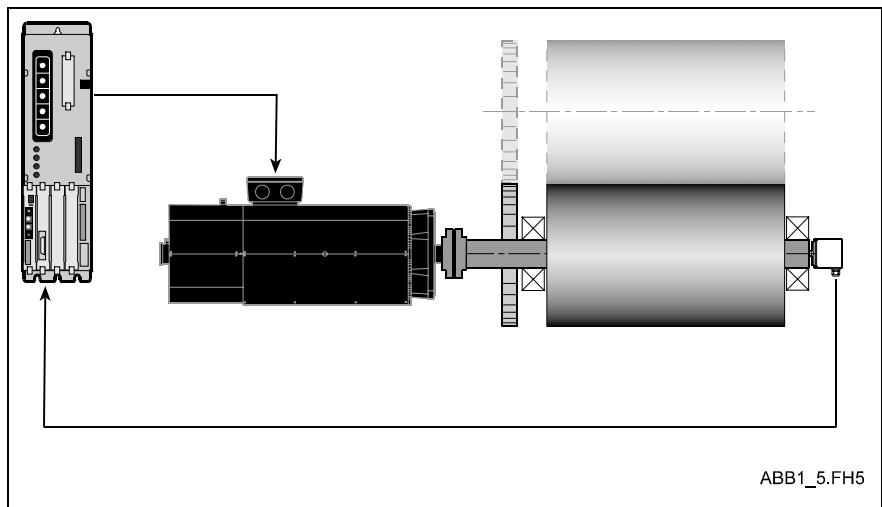


Fig. 1-5: Axle drive without gear, with direct measuring system, e.g., press roller

**Kit roller motor,
direct measuring system**

The measuring system is mounted load side and directly detects axis position. Precision is dependent on the measuring system used and the maximum possible amplification of the position control loop. The high mechanical rigidity of the direct roller drive via the roller pins results in extreme reinforcement within the position control loop.

- air-cooled and non-cooled motors: MBW
- liquid-cooled motors: ---

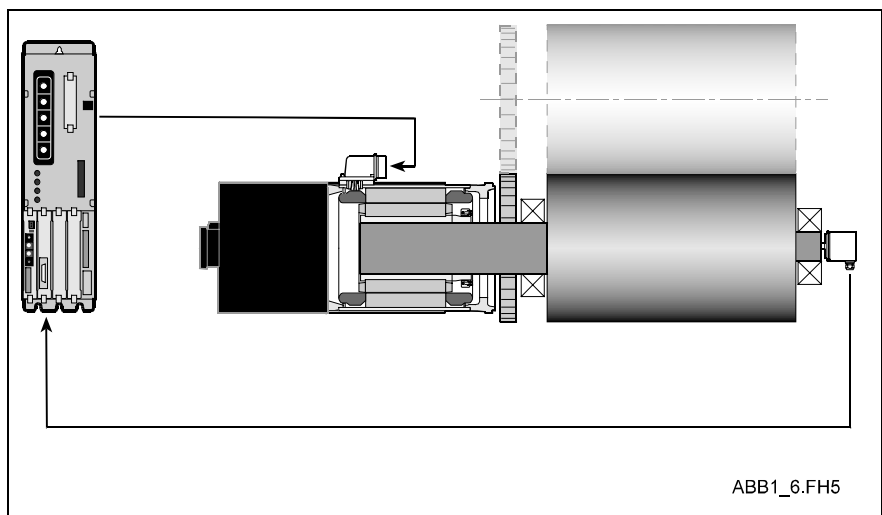


Fig. 1-6: Axle drive with kit roller motor, direct measuring system, e.g., press roller

2 Selection lists

2.1 Torque characteristics of AC Motors

S1 motor operation Characteristic of S1 drives is a continuous operation at a stationary process rotational speed to overcome a relatively wide constant process force.

The continuous torque of an AC motor which can be yielded is dependent on the stationary rotational speed at which the motor is to be operated.

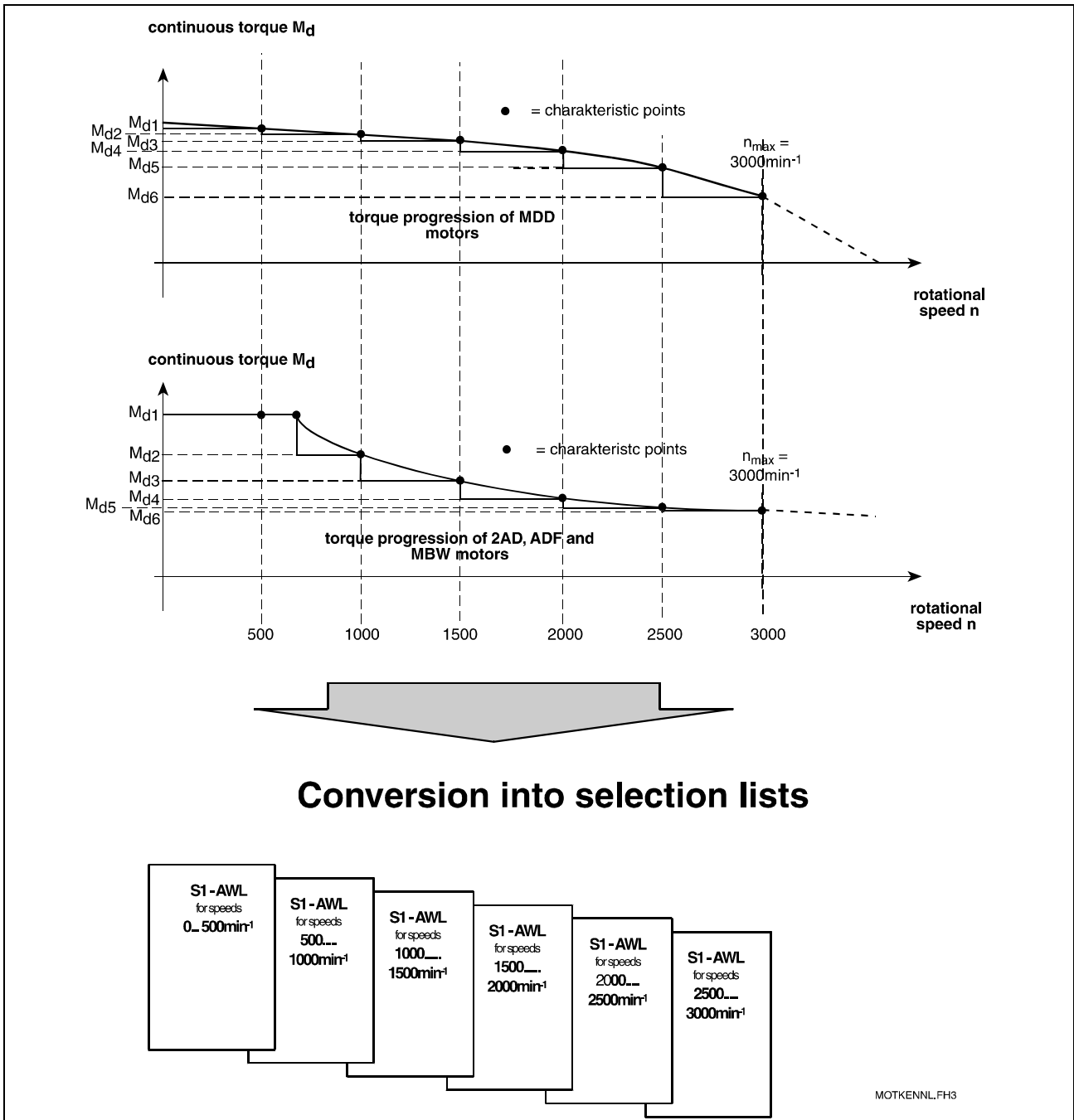
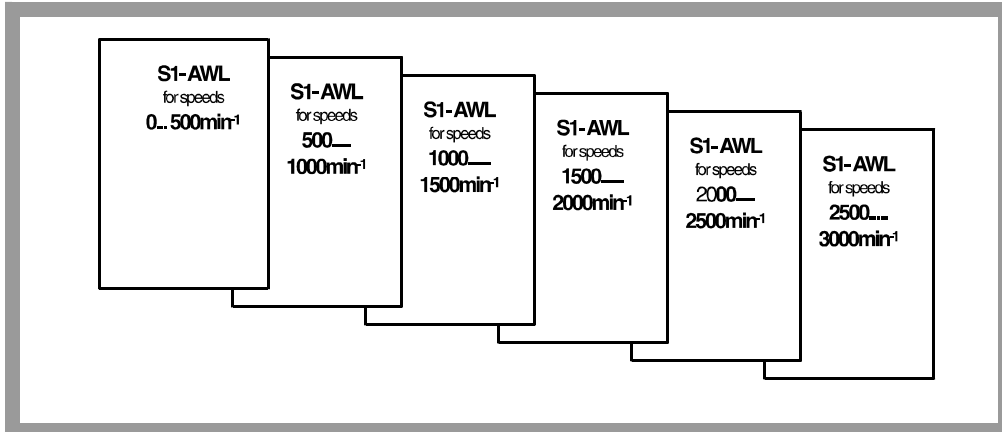


Fig. 2-1: Continuous torque progression of INDRAMAT AC motors with characteristic points for tabulated selection lists

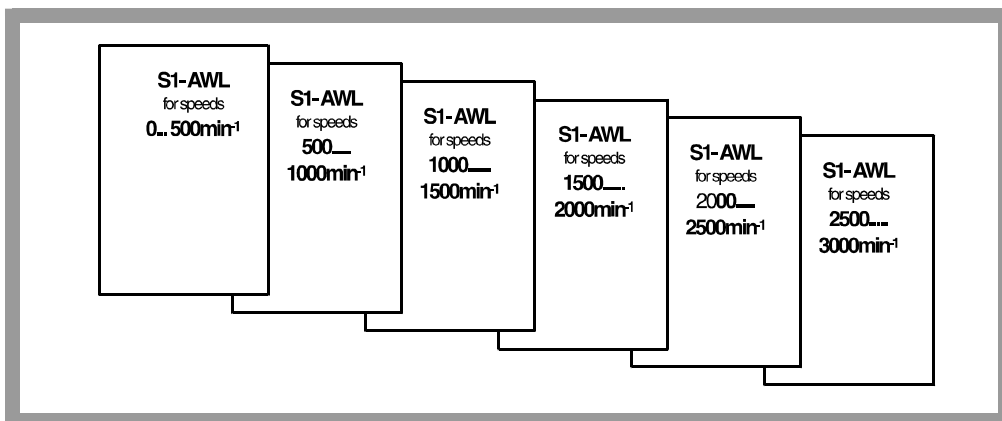
Selection list grouping The tabulated selection lists are grouped in terms of

- S1 drives with air-cooled motors (MDD, 2AD)
- S1 drives with liquid-cooled motors (MDD...-F, ADF)
- S1 drives with air-cooled kit roller motors (MBW)

• Air-cooled and non-cooled motors (MDD, 2AD)



• Liquid-cooled motors (MDD-F, ADF)



• Kit roller motor (MBW)

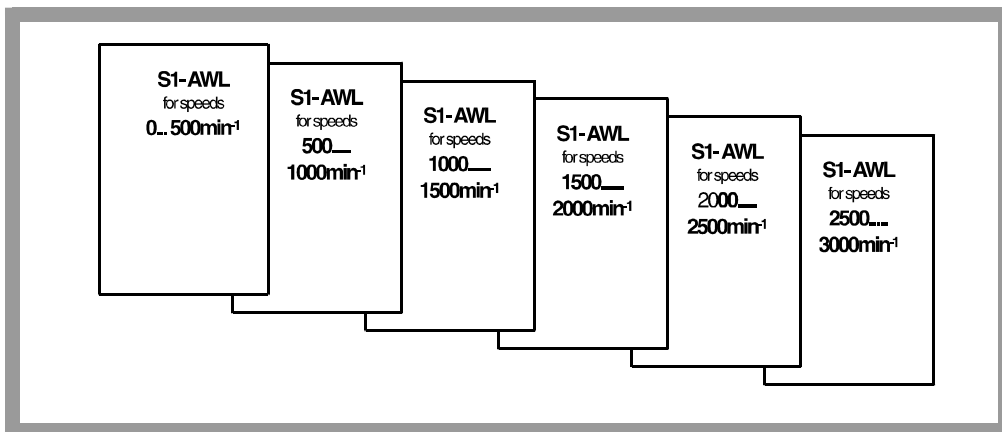


Fig. 2-2: S1 selection list grouping (AWL)

2.2 Physical observations on the S1 drives and dimensioning guidelines

A comparison of S1 / S6 operations of motors

To date, Rexroth Indramat selection data relates to AC servo and AC main spindle drives of machine tools where cyclical loads with high overloads (S6 operation) primarily occur.

These selection lists are therefore not well suited for a quick and reliable selection of S1 drives as they have been developed to support drives for S6 operation.

	S1 continuous operation	S6 short-term operation
Type of load	stationary load, load duration >> thermal time constant of motor	cyclical load, cycle duration < thermal time constant of motors
Temperature ramp of motor	high average temperature level Temperature changes not excessive (as temperature level remains high) due to short-term loads. Thermal recovery after temporally limited short-term operations due to breaks or continuous operations at 90% of continuous motor torque.	low average temperature level Excessive temperature changes occur as cyclical operations occur with overload in terms of per cent ON time (%ED). Thermal recovery due to breaks caused by per cent ON time (%ED).
Motor features	Continuous operating torque may not exceed 90% of continuous motor torque so that a thermal reserve for accel and decel processes is retained.	Effective torque of the cyclical load must be less than or equal to continuous motor torque.

Fig. 2-3: A comparison of continuous and short-term operations

S1 operation The physical state variables of motor rotational speed, torque and temperature for S1 operations is based on the following progression:

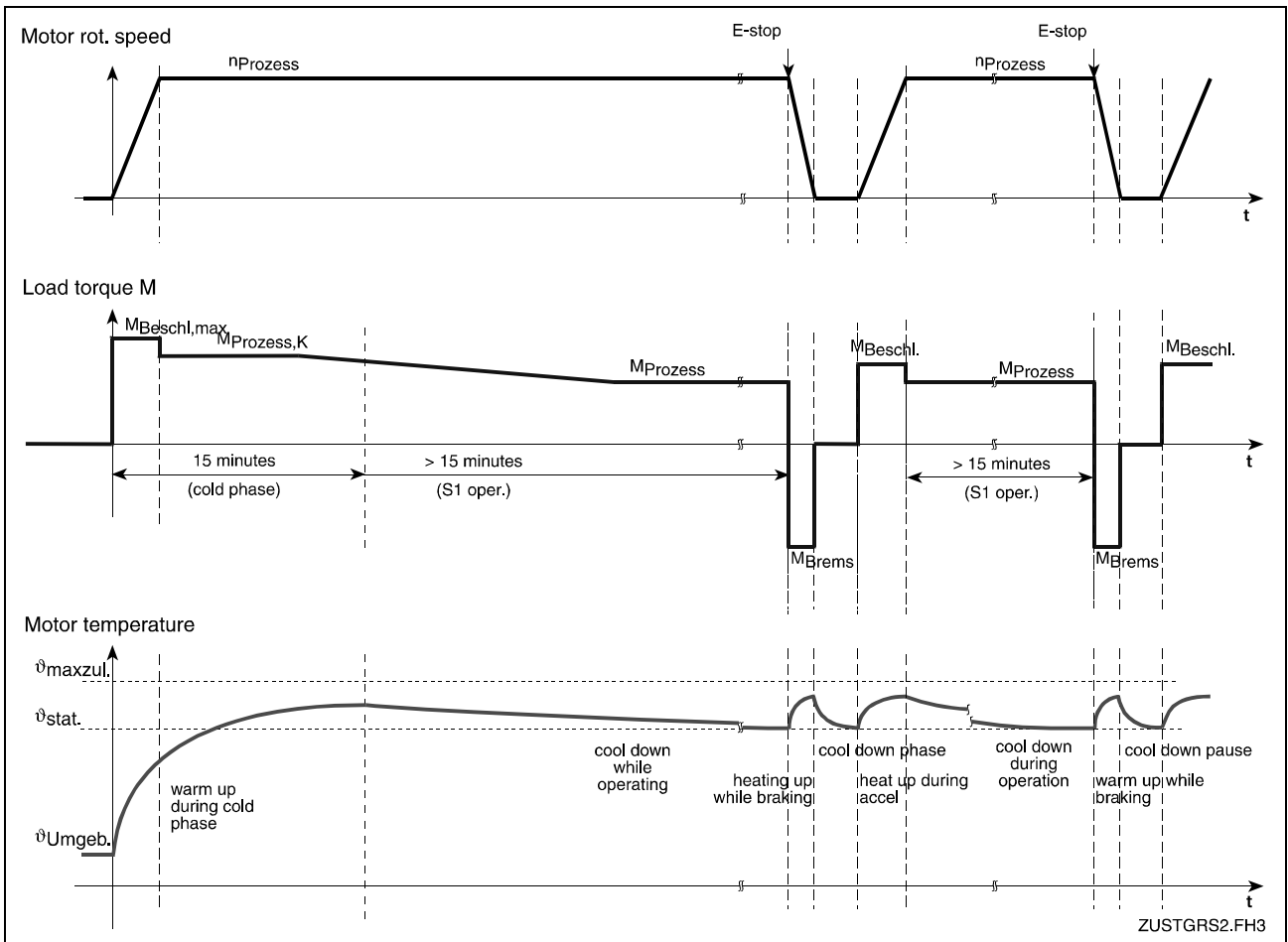


Fig. 2-4: State variables of S1 drives

Dimensioning guidelines for S1 drives

Selecting the best drive Motors with driven shafts, e.g., the MDD, 2AD or ADF, should be operated within a rotational speed range of 1500 to 3000 min⁻¹. This generally ensures the best possible performance range. In other words, the smallest motor size and the greatest operating efficiency.

Note: Low motor output rotational speeds should be increased with the use of gear ratios!

1st rule for S1 drive dimensioning

The load torque reduced to the motor drive shaft of the S1 process may not exceed 90% of the continuous drive torque!

$$M_{\text{Prozess}} < 0,9 \cdot M_{\text{dn2}}$$

M_{Prozess} : load torque of the S1 process

M_{dn2} : maximum permissible continuous drive torque (as per S1 selection list)

Fig. 2-5: Dimensioning criteria - continuous operation

This rule ensures that the drive has sufficient thermal reserves for acceleration and deceleration with the specified short-term torques (see section 2.3 "Selection list columns explained").

The maximum permissible continuous drive torque at the rotational speed of the process of the motor drive shaft is listed in the selection lists for the relevant rotational speed range!

Operating durations exceeding 15 minutes apply to drive S1 operation!

$$\text{S1 operation: } t_{\text{Prozess}} > 15 \text{ min}$$

t_{Prozess} : operating duration

Fig. 2-6: Evaluation criteria for S1 operation

2nd rule for S1 drive dimensioning

The drive must have sufficient short-term torque for accelerating and decelerating the machine !

$$M_{\text{Beschl.,max}} \text{ or } M_{\text{Brems}} < M_{\text{kz}(60\text{s})} \text{ for } t \leq 60 \text{ s}$$

$$M_{\text{Beschl.,max}} \text{ or } M_{\text{Brems,max}} < M_{\text{kz}(10\text{s})} \text{ for } t \leq 10 \text{ s}$$

$M_{\text{Beschl.,max}}$: maximum accel torque, e.g., with cold machine

$M_{\text{kz}(60\text{s})}$: short-term torque for 60 seconds

t : accel / decel time

M_{Brems} : decel torque

$M_{\text{Brems,max}}$: maximum decel torque, e.g., in E-stop situation

$M_{\text{kz}(10\text{s})}$: short-term torque for 10 seconds

Fig. 2-7: Dimensioning criteria for accel / decel torque

In a controlled accel or decel situation, maximum short-term torque must exceed accel torque by at least 10%!

3rd rule for S1 drive dimensioning

If machines have increased load torque during cold start in contrast to S1 operation (warm start), then the continuous torque of the drive must exceed the effective, reduced in terms of the drive shaft, load torque of the first 15 operating minutes!

$$M_{\text{last_eff,K}} < M_{\text{dn2}}$$

$M_{\text{last_eff,K}}$: effective, reduced to driven shaft, load torque with cold start within 0 to 15 minutes

M_{dn2} : maximum permissible continuous drive torque as per S1 selection list

Fig. 2-8: Dimensioning criteria - cold start

2.3 Selection list columns explained

- n_1 (1) and n_2 (2)** Rotational speed range within which lies the maximum operating rotational speed of the S1 process.
- P_{dn2} (3)** Maximum continuous drive output with stationary operation at maximum permissible continuous torque M_{dn2} (4) at rotational speed n_2 (2).
- M_{dn2} (4)** Maximum permissible continuous drive torque at rotational speed n_2 (2), simplified as maximum permissible continuous torque usable within the rotational speed range limited by n_1 (1) and n_2 (2).
 Note the Dimensioning guidelines! (See Fig. 2-5: Dimensioning criteria - continuous operation and Fig. 2-6: Evaluation criteria for S1 operation).
- $M_{kz(10s)}$ (5)** Short-term torque available for ten seconds during the continuous operation of the drive within rotational speed range of 0... n_2 (2).
 Preconditions for $M_{kz(10s)}$:
- preceding operation of the drive available for at least 15 minutes with no more than $0.9 \cdot M_{dn2}$ (4)
- or -
- preceding, no current, standstill time of drive for at least 60 seconds.
- $M_{kz(60s)}$ (6)** Short-term torque with continuous operation of the drive for 60 seconds available in rotational speed range of 0... n_2 (2).
 Preconditions for $M_{kz(60s)}$:
- preceding operation of the drive lasting for at least 15 minutes at no more than $0.9 \cdot M_{dn2}$ (4)
- or -
- preceding, no current, standstill time of drive for at least 60 seconds.
- P_{DC} or S_{Netz} (7)** The DC bus continuous output (P_{DC}) which the drive of the modular drive system (DDS) demands of the supply module during stationary operations at a rotational speed of n_2 (2) and a maximum permissible continuous torque M_{dn2} (4). This value is used to dimension the supply module.
 - e.g. -
 Mains supply output (S_{Netz}) for the drive during stationary operation at a rotational speed of n_2 (2) and a maximum permissible continuous torque M_d (4) for the dimensioning of the mains supply in drives for direct mains connections, e.g., DKR.
- Motor (8)** Type designation of the relevant motor (positions of the type designation that determine power).
- Cooling (9)** Motor cooling relevant to the output data:
- „natural“ = uncooled (in MDD and MBW motors)
 - „surface“ = cooled (in MDD and MBW motors, optional, standard with 2AD motors)
 - „liquid“ = liquid cooling (with MDD and ADF motors only)
- Controller (10)** Type designation of the relevant controller.
 (Positions of the type designation that determine power.)

2.4 S1 drives with air-cooled and non-cooled motors

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 0 to 500 min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
0	500	0,18	3,4	7,0	5,2	0,43	MDD090A-N-020	natural	DDS03.2-W015
0	500	0,25	4,8	7,0	5,2	0,68	MDD090A-N-020	Surface	DDS03.2-W015
0	500	0,35	6,6	13	10	0,64	MDD090B-N-020	natural	DDS03.2-W015
0	500	0,45	8,5	14	13	0,81	MDD093A-N-020	natural	DDS03.2-W015
0	500	0,45	8,5	18	13	0,84	MDD093A-N-020	natural	DDS03.2-W030
0	500	0,50	9,5	13	13	0,83	MDD090C-N-020	natural	DDS03.2-W015
0	500	0,50	9,5	17	15	0,86	MDD090C-N-020	natural	DDS03.2-W030
0	500	0,53	10	13	10	1,04	MDD090B-N-020	Surface	DDS03.2-W015
0	500	0,60	12	14	13	1,3	MDD093A-N-020	Surface	DDS03.2-W015
0	500	0,60	12	18	13	1,3	MDD093A-N-020	Surface	DDS03.2-W030
0	500	0,65	13	19	15	1,4	MDD112A-N-015	Surface	DDS03.2-W015
0	500	0,73	14	21	18	1,1	MDD093B-N-020	natural	DDS03.2-W030
0	500	0,73	14	28	20	1,1	MDD093B-N-020	natural	DDS03.2-W050
0	500	0,81	15	17	15	1,5	MDD090C-N-020	Surface	DDS03.2-W030
0	500	0,81	15	20	15	1,5	MDD090C-N-020	Surface	DDS03.2-W050
0	500	0,87	17	19	19	1,2	MDD112B-N-015	natural	DDS03.2-W015
0	500	0,87	17	30	25	1,2	MDD112B-N-015	natural	DDS03.2-W030
0	500	0,92	18	18	18	1,4	MDD093C-N-020	natural	DDS03.2-W030
0	500	0,92	18	22	22	1,4	MDD093C-N-020	natural	DDS03.2-W050
0	500	1,02	20	21	20	1,8	MDD093B-N-020	Surface	DDS03.2-W050
0	500	1,4	27	30	30	1,9	MDD112C-N-015	natural	DDS03.2-W050
0	500	1,4	27	53	39	2,1	MDD112C-N-015	natural	DDS02.2-W050
0	500	1,5	29	33	29	2,3	MDD112B-N-015	Surface	DDS02.2-W050
0	500	1,9	36	64	53	2,7	MDD112D-N-015	natural	DDS02.2-W050
0	500	2,2	42	53	42	3,3	MDD112C-N-015	Surface	DDS02.2-W050
0	500	2,9	56	64	56	4,2	MDD112D-L-015	Surface	DDS02.2-W050
0	500	2,9	56	72	56	4,4	MDD112D-L-015	Surface	DDS02.2-W100
0	500	3,4	64	81	81	4,8	2AD132B-DS	surface	DDS02.2-W050
0	500	3,4	64	128	96	4,9	2AD132B-DS	surface	DDS02.2-W100
0	500	4,6	87	87	87	6,6	2AD132C-CS	surface	DDS02.2-W050
0	500	5,0	96	148	127	7,1	2AD132C-CS	surface	DDS02.2-W100
0	500	6,5	125	125	125	9,5	2AD132D-AS	surface	DDS02.2-W100
0	500	7,3	139	208	174	10,3	2AD132D-AS	surface	DDS02.2-W200
0	500	7,3	140	265	210	10,3	2AD132D-AS	surface	DDS02.2-A200
0	500	10,0	191	210	210	13,5	2AD160B-BS	surface	DDS02.2-A200

Fig. 2.9: Modular S1 drive with air-cooled and non-cooled motors in a rotational speed range of 0 to 500 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2.10: S1 drives for direct mains connection with air-cooled and non-cooled motors in a rotational speed range of 0 to 500 min⁻¹

Note: Low motor output speeds should be increased by means of gear ratios (see page 2-5).

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 500 to 1000 min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
500	1000	0,31	3,0	7,0	5,2	0,57	MDD090A-N-020	natural	DDS03.2-W015
500	1000	0,48	4,6	7,0	5,2	0,91	MDD090A-N-020	Surface	DDS03.2-W015
500	1000	0,62	5,9	13	10	0,91	MDD090B-N-020	natural	DDS03.2-W015
500	1000	0,81	7,7	14	13	1,2	MDD093A-N-020	natural	DDS03.2-W015
500	1000	0,81	7,7	18	13	1,2	MDD093A-N-020	natural	DDS03.2-W030
500	1000	0,88	8,4	13	13	1,2	MDD090C-N-020	natural	DDS03.2-W015
500	1000	0,88	8,4	20	15	1,2	MDD090C-N-020	natural	DDS03.2-W030
500	1000	0,98	9,4	19	15	1,4	MDD112A-N-015	natural	DDS03.2-W015
500	1000	1,02	9,7	13	10	1,5	MDD090B-N-020	Surface	DDS03.2-W015
500	1000	1,1	11	14	13	1,8	MDD093A-N-020	Surface	DDS03.2-W015
500	1000	1,1	11	18	13	1,8	MDD093A-N-020	Surface	DDS03.2-W030
500	1000	1,3	12	19	15	2,0	MDD112A-N-015	Surface	DDS03.2-W015
500	1000	1,4	13	21	18	1,8	MDD093B-N-020	natural	DDS03.2-W030
500	1000	1,4	13	28	20	1,8	MDD093B-N-020	natural	DDS03.2-W050
500	1000	1,6	15	18	18	2,1	MDD093C-N-020	natural	DDS03.2-W030
500	1000	1,6	15	32	24	2,1	MDD093C-N-020	natural	DDS03.2-W050
500	1000	1,6	16	19	19	2,0	MDD112B-N-015	natural	DDS03.2-W015
500	1000	1,6	16	33	25	2,0	MDD112B-N-015	natural	DDS03.2-W030
500	1000	2,0	19	21	20	2,8	MDD093B-N-020	Surface	DDS03.2-W050
500	1000	2,0	19	28	20	3,0	MDD093B-N-020	Surface	DDS02.2-W050
500	1000	2,6	25	25	25	3,1	MDD112C-N-015	natural	DDS03.2-W030
500	1000	2,6	25	53	39	3,3	MDD112C-N-015	natural	DDS02.2-W050
500	1000	2,9	28	30	28	3,6	MDD112B-N-015	Surface	DDS03.2-W050
500	1000	3,2	31	31	31	3,8	MDD112D-N-015	natural	DDS03.2-W050
500	1000	3,6	34	64	53	4,3	MDD112D-N-015	natural	DDS02.2-W050
500	1000	4,3	41	53	41	5,5	MDD112C-N-015	Surface	DDS02.2-W050
500	1000	5,7	54	64	54	7,0	MDD112D-L-015	Surface	DDS02.2-W050
500	1000	5,7	54	72	54	7,2	MDD112D-L-015	Surface	DDS02.2-W100
500	870	5,8	64	81	81	7,3	2AD132B-DS	surface	DDS02.2-W050
870	1000	5,8	56	70	70	7,3	2AD132B-DS	surface	DDS02.2-W050
500	870	5,8	64	122	96	7,4	2AD132B-DS	surface	DDS02.2-W100
870	1000	5,8	56	106	84	7,4	2AD132B-DS	surface	DDS02.2-W100
500	870	8,8	96	148	127	10,9	2AD132C-CS	surface	DDS02.2-W100
870	1000	8,8	84	129	111	10,9	2AD132C-CS	surface	DDS02.2-W100
500	870	12,6	139	208	174	15,6	2AD132D-AS	surface	DDS02.2-W200
870	1000	12,6	121	181	152	15,6	2AD132D-AS	surface	DDS02.2-W200
500	870	12,8	140	265	210	15,8	2AD132D-AS	surface	DDS02.2-A200
870	1000	12,8	122	231	183	15,8	2AD132D-AS	surface	DDS02.2-A200
500	870	17,4	191	210	210	20,9	2AD160B-BS	surface	DDS02.2-A200
870	1000	17,4	166	183	183	20,9	2AD160B-BS	surface	DDS02.2-A200

Fig. 2-11: Modular S1 drives with air-cooled and non-cooled motors in a rotational speed range of 500 to 1000 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-12: S1 drives for direct mains connection with air-cooled and non-cooled motors in a rotational speed range of 500 to 1000 min⁻¹

Note: Low motor output speeds should be increased by means of gear ratios (see page 2-5).

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 1000 to 1500 min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
1000	1500	0,4	2,7	7,0	5,1	0,68	MDD090A-N-020	natural	DDS03.2-W015
1000	1500	0,7	4,3	7,0	5,1	1,10	MDD090A-N-020	Surface	DDS03.2-W015
1000	1500	0,8	5,1	13	10	1,09	MDD090B-N-020	natural	DDS03.2-W015
1000	1500	1,1	6,8	14	13	1,4	MDD093A-N-020	natural	DDS03.2-W015
1000	1500	1,1	7,2	13	13	1,4	MDD090C-N-020	natural	DDS03.2-W015
1000	1500	1,4	8,8	19	15	1,8	MDD112A-N-015	natural	DDS03.2-W015
1000	1500	1,4	9,2	13	10	2,0	MDD090B-N-020	Surface	DDS03.2-W015
1000	1500	1,6	10,3	14	13	2,3	MDD093A-N-020	Surface	DDS03.2-W015
1000	1500	1,6	10,3	18	13	2,3	MDD093A-N-020	Surface	DDS03.2-W030
1000	1500	1,8	12	19	15	2,5	MDD112A-N-015	Surface	DDS03.2-W015
1000	1500	2,0	13	13	13	2,4	MDD093B-N-020	natural	DDS03.2-W015
1000	1500	2,0	13	21	18	2,4	MDD093B-N-020	natural	DDS03.2-W030
1000	1500	2,2	14	20	15	2,7	MDD090C-N-020	Surface	DDS03.2-W030
1000	1500	2,3	15	19	19	2,6	MDD112B-N-015	natural	DDS03.2-W015
1000	1500	2,3	15	33	25	2,6	MDD112B-N-015	natural	DDS03.2-W030
1000	1500	2,9	19	21	20	3,7	MDD093B-N-020	Surface	DDS03.2-W050
1000	1500	2,9	19	28	20	3,9	MDD093B-N-020	Surface	DDS03.2-W050
1000	1500	3,4	22	22	22	4,4	MDD093C-N-020	Surface	DDS03.2-W050
1000	1500	3,7	23	38	32	4,2	MDD112C-N-015	natural	DDS03.2-W050
1000	1500	3,7	23	53	39	4,4	MDD112C-N-015	natural	DDS02.2-W050
1000	1500	3,7	24	37	27	4,8	MDD093C-N-020	Surface	DDS02.2-W050
1000	1500	3,9	25	25	25	4,6	MDD112B-N-015	Surface	DDS03.2-W030
1000	1500	4,3	27	30	27	5,0	MDD112B-N-015	Surface	DDS03.2-W050
1000	1500	4,8	31	31	31	5,4	MDD112D-N-015	natural	DDS03.2-W050
1000	1500	5,0	32	64	53	5,8	MDD112D-N-015	natural	DDS02.2-W050
1000	1500	6,3	40	53	40	7,5	MDD112C-N-015	Surface	DDS02.2-W050
1000	1500	8,3	53	64	53	9,7	MDD112D-L-015	Surface	DDS02.2-W050
1000	1500	8,3	53	72	53	9,8	MDD112D-L-015	Surface	DDS02.2-W100
1000	1500	10,0	64	72	72	11,6	2AD132B-BS	surface	DDS02.2-W100
1000	1500	10,0	64	121	96	11,6	2AD132B-BS	surface	DDS02.2-W200
1000	1500	14,5	92	92	92	16,8	2AD132C-BS	surface	DDS02.2-W200
1000	1500	15,1	96	153	137	17,3	2AD132C-BS	surface	DDS02.2-A200
1000	1500	21,1	134	134	134	24,1	2AD132D-BD	surface	DDS02.2-A100
1000	1500	22,1	141	165	165	25,2	2AD132D-BD	surface	DDS02.2-A200

Fig. 2-13: Modular S1 drives with air-cooled and non-cooled motors in rotational speed range of 1000...1500 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-14: S1 drives for direct mains connection with air-cooled and non-cooled motors in rotational speed range of 1000..1500 min⁻¹

Note: Low motor output speeds should be increased by means of gear ratios (see page 2-5).

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 1500...2000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
1500	2000	0,5	2,2	7,0	5,2	0,71	MDD090A-N-020	natural	DDS03.2-W015
1500	2000	0,9	4,1	7,0	5,2	1,3	MDD090A-N-020	Surface	DDS03.2-W015
1500	2000	0,9	4,2	13	10	1,2	MDD090B-N-020	natural	DDS03.2-W015
1500	2000	1,2	5,8	13	13	1,6	MDD090C-N-020	natural	DDS03.2-W015
1500	2000	1,7	8,1	13	11	2,1	MDD112A-N-020	natural	DDS03.2-W015
1500	2000	1,7	8,1	16	11	2,1	MDD112A-N-020	natural	DDS03.2-W030
1500	2000	1,7	8,1	20	15	2,1	MDD112A-N-030	natural	DDS03.2-W050
1500	2000	1,8	8,7	13	10	2,3	MDD090B-N-020	Surface	DDS03.2-W015
1500	2000	2,0	9,6	14	13	2,7	MDD093A-N-020	Surface	DDS03.2-W015
1500	2000	2,0	9,6	18	13	2,7	MDD093A-N-020	Surface	DDS03.2-W030
1500	2000	2,5	12	13	13	2,9	MDD093B-N-020	natural	DDS03.2-W015
1500	2000	2,5	12	21	18	2,9	MDD093B-N-020	natural	DDS03.2-W030
1500	2000	2,7	13	20	18	3,1	MDD112B-N-020	natural	DDS03.2-W030
1500	2000	2,7	13	30	22	3,1	MDD112B-N-020	natural	DDS03.2-W050
1500	2000	2,7	13	13	13	3,3	MDD090C-N-020	Surface	DDS03.2-W015
1500	2000	2,8	14	20	15	3,5	MDD090C-N-020	Surface	DDS03.2-W030
1500	2000	3,6	17	17	17	4,4	MDD093B-N-020	Surface	DDS03.2-W030
1500	2000	3,8	18	21	20	4,6	MDD093B-N-020	Surface	DDS03.2-W050
1500	2000	3,9	19	19	19	4,4	MDD112C-N-020	natural	DDS03.2-W030
1500	2000	3,9	19	28	24	4,4	MDD112C-N-020	natural	DDS03.2-W050
1500	2000	4,0	19	47	39	4,7	MDD112C-N-020	natural	DDS02.2-W050
1500	2000	4,4	21	21	21	5,0	MDD112D-N-020	natural	DDS03.2-W050
1500	2000	4,7	23	43	37	5,5	MDD112D-N-020	natural	DDS02.2-W050
1500	2000	5,5	26	33	26	6,4	MDD112B-N-020	Surface	DDS02.2-W050
1500	2000	5,9	28	31	31	6,7	MDD112D-N-030	natural	DDS02.2-W050
1500	2000	5,9	28	63	51	6,7	MDD112D-N-030	natural	DDS02.2-W100
1500	2000	8,2	39	47	39	9,3	MDD112C-L-020	Surface	DDS02.2-W050
1500	2000	9,1	43	43	43	10,4	MDD112D-N-020	Surface	DDS02.2-W050
1500	2000	9,8	47	47	47	11,4	MDD112D-N-030	Surface	DDS02.2-W100
1500	2000	10,0	48	54	54	11,6	2AD132B-BS	surface	DDS02.2-W100
1500	2000	10,0	48	91	72	11,6	2AD132B-BS	surface	DDS02.2-W200
1500	2000	10,1	48	56	48	11,6	MDD112D-N-020	Surface	DDS02.2-W100
1500	2000	10,7	51	58	53	12,3	MDD112D-N-030	Surface	DDS02.2-W200
1500	2000	14,5	69	69	69	16,8	2AD132C-BS	surface	DDS02.2-W200
1500	2000	15,1	72	115	103	17,3	2AD132C-BS	surface	DDS02.2-A200
1500	2000	19,1	91	91	91	22,2	2AD132D-BD	surface	DDS02.2-A100
1500	2000	22,1	105	118	118	25,2	2AD132D-BD	surface	DDS02.2-A200

Fig. 2-15: Modular S1 drives with air-cooled and non-cooled motors in rotational speed range of 1500...2000 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-16: S1 drives for direct mains connection with air-cooled and non-cooled motors in rotational speed range of 1500..2000 min⁻¹

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 2000...2500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
2000	2500	0,5	2,0	7,0	5,1	0,79	MDD090A-N-030	natural	DDS03.2-W015
2000	2500	0,9	3,5	8,6	8,6	1,2	MDD090B-N-030	natural	DDS03.2-W015
2000	2500	1,0	3,9	7,0	5,1	1,5	MDD090A-N-030	Surface	DDS03.2-W015
2000	2500	1,3	4,9	8,0	8,0	1,6	MDD090C-N-030	natural	DDS03.2-W015
2000	2500	1,3	4,9	14	12	1,6	MDD090C-N-030	natural	DDS03.2-W030
2000	2500	1,5	5,6	7,8	7,8	1,8	MDD093A-N-030	natural	DDS03.2-W015
2000	2500	1,5	5,6	14	11	1,8	MDD093A-N-030	natural	DDS03.2-W030
2000	2500	1,9	7,4	9,1	9,1	2,3	MDD112A-N-030	natural	DDS03.2-W015
2000	2500	1,9	7,4	16	13	2,3	MDD112A-N-030	natural	DDS03.2-W030
2000	2500	2,1	8,0	9,1	9,1	2,5	MDD093C-N-030	natural	DDS03.2-W015
2000	2500	2,1	8,0	16	13	2,5	MDD093C-N-030	natural	DDS03.2-W030
2000	2500	2,1	8,0	21	16	2,6	MDD093C-N-030	natural	DDS03.2-W050
2000	2500	2,2	8,4	8,6	8,6	2,7	MDD090B-N-030	Surface	DDS03.2-W015
2000	2500	2,2	8,4	14	10	2,7	MDD090B-N-030	Surface	DDS03.2-W030
2000	2500	2,4	9,0	9,0	9,0	2,8	MDD093B-N-030	natural	DDS03.2-W015
2000	2500	2,4	9,1	15	13	2,8	MDD093B-N-030	natural	DDS03.2-W030
2000	2500	2,4	9,1	21	16	2,8	MDD093B-N-030	natural	DDS03.2-W050
2000	2500	2,8	10,7	12	12	3,5	MDD112A-N-030	Surface	DDS03.2-W030
2000	2500	2,8	10,7	18	15	3,5	MDD112A-N-030	Surface	DDS03.2-W050
2000	2500	3,1	12	19	16	3,5	MDD112B-N-030	natural	DDS03.2-W050
2000	2500	3,1	12	31	25	3,7	MDD112B-N-030	natural	DDS02.2-W050
2000	2500	3,4	13	13	13	4,0	MDD090C-N-030	Surface	DDS03.2-W050
2000	2500	3,4	13	20	15	4,3	MDD090C-N-030	Surface	DDS02.2-W050
2000	2500	4,3	17	28	20	5,4	MDD093B-N-030	Surface	DDS02.2-W050
2000	2500	4,9	19	32	32	5,6	MDD112C-N-030	natural	DDS02.2-W050
2000	2500	4,9	19	48	39	5,7	MDD112C-N-030	natural	DDS02.2-W100
2000	2500	5,6	22	30	27	6,7	MDD093C-L-030	Surface	DDS02.2-W050
2000	2500	5,6	22	37	27	6,9	MDD093C-L-030	Surface	DDS02.2-W100
2000	2500	6,5	25	31	31	7,3	MDD112D-N-030	natural	DDS02.2-W050
2000	2500	6,5	25	47	47	7,5	MDD112D-N-030	natural	DDS02.2-W100
2000	2500	6,8	26	31	26	7,7	MDD112B-L-030	Surface	DDS02.2-W050
2000	2500	8,5	32	32	32	9,5	MDD112C-N-030	Surface	DDS02.2-W050
2000	2500	10,1	39	53	39	11,3	MDD112C-N-030	Surface	DDS02.2-W100
2000	2500	12,3	47	47	47	13,9	MDD112D-N-030	Surface	DDS02.2-W100
2000	2500	12,8	49	72	53	14,4	MDD112D-N-030	Surface	DDS02.2-W200
2000	2500	14,5	55	55	55	16,8	2AD132C-BS	surface	DDS02.2-W200
2000	2500	15,1	58	92	82	17,3	2AD132C-BS	surface	DDS02.2-A200
2000	2500	19,1	73	73	73	22,2	2AD132D-BD	surface	DDS02.2-A100
2000	2500	22,1	84	95	95	25,2	2AD132D-BD	surface	DDS02.2-A200

Fig. 2-17: Modular S1 drives with air-cooled and non-cooled motors in rotational speed range of 2000...2500 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-18: S1 drives for direct mains connection with air-cooled and non-cooled motors in rotational speed range of 2000..2500 min⁻¹

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 2500...3000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
2500	3000	0,44	1,4	7,0	5,1	0,71	MDD090A-N-030	natural	DDS03.2-W015
2500	3000	0,69	2,2	8,6	8,6	0,99	MDD090B-N-030	natural	DDS03.2-W015
2500	3000	0,82	2,6	8,0	8,0	1,2	MDD090C-N-030	natural	DDS03.2-W015
2500	3000	1,2	3,7	7,0	5,1	1,6	MDD090A-N-030	surface	DDS03.2-W015
2500	3000	1,4	4,6	7,8	7,8	1,8	MDD093A-N-030	natural	DDS03.2-W015
2500	3000	1,4	4,6	14	11	1,8	MDD093A-N-030	natural	DDS03.2-W030
2500	3000	2,0	6,3	6,4	6,4	2,4	MDD112A-N-040	natural	DDS03.2-W015
2500	3000	2,0	6,3	10	9,1	2,4	MDD112A-N-040	natural	DDS03.2-W030
2500	3000	2,0	6,3	15	11	2,4	MDD112A-N-040	natural	DDS03.2-W050
2500	3000	2,4	7,5	9,0	9,0	2,8	MDD093B-N-030	natural	DDS03.2-W015
2500	3000	2,4	7,5	16	13	2,8	MDD093B-N-030	natural	DDS03.2-W030
2500	3000	2,5	8,0	8,6	8,6	3,0	MDD090B-N-030	surface	DDS03.2-W015
2500	3000	2,5	8,0	14	10	3,1	MDD090B-N-030	surface	DDS03.2-W030
2500	3000	2,8	9,0	10	10	3,5	MDD093A-N-030	surface	DDS03.2-W030
2500	3000	2,8	9,0	16	13	3,5	MDD093A-N-030	surface	DDS03.2-W050
2500	3000	2,9	9,4	9,4	9,4	3,3	MDD112B-N-030	natural	DDS03.2-W015
2500	3000	3,1	9,9	10	10	3,9	MDD112A-N-040	surface	DDS03.2-W050
2500	3000	3,1	9,9	20	15	4,1	MDD112A-N-040	surface	DDS02.2-W050
2500	3000	3,3	10,5	12	12	3,7	MDD112B-N-030	natural	DDS03.2-W030
2500	3000	3,3	10,5	22	17	3,7	MDD112B-N-030	natural	DDS03.2-W050
2500	3000	3,9	13	13	13	4,6	MDD090C-N-030	surface	DDS03.2-W050
2500	3000	3,9	13	20	15	4,8	MDD090C-N-030	surface	DDS02.2-W050
2500	3000	4,5	14	14	14	5,4	MDD093B-N-030	surface	DDS03.2-W050
2500	3000	4,9	15	15	15	5,4	MDD112C-N-030	natural	DDS03.2-W050
2500	3000	4,9	16	28	20	6,0	MDD093B-N-030	surface	DDS02.2-W050
2500	3000	5,1	16	32	32	5,8	MDD112C-N-030	natural	DDS02.2-W050
2500	3000	6,3	20	30	27	7,4	MDD093C-L-030	surface	DDS02.2-W050
2500	3000	6,3	20	37	27	7,5	MDD093C-L-030	surface	DDS02.2-W100
2500	3000	6,7	21	31	31	7,5	MDD112D-N-030	natural	DDS02.2-W050
2500	3000	6,7	21	62	43	7,6	MDD112D-N-030	natural	DDS02.2-W100
2500	3000	8,0	25	31	25	8,9	MDD112B-L-030	surface	DDS02.2-W050
2500	3000	11,8	38	53	39	13,0	MDD112C-N-030	surface	DDS02.2-W100
2500	3000	14,8	47	47	47	16,3	MDD112D-N-030	surface	DDS02.2-W100
2500	3000	15,0	48	62	48	16,5	MDD112D-N-030	surface	DDS02.2-W200
2500	3000	22,1	70	79	79	25,2	2AD132D-BD	surface	DDS02.2-A200

Fig. 2-19: Modular S1 drives with air-cooled and non-cooled motors in rotational speed range of 2500...3000 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-20: S1 drives for direct mains connection with air-cooled and non-cooled motors in rotational speed range of 2500...3000 min⁻¹

2.5 S1 drives with liquid-cooled motors

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 0...500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
0	500	0,4	6,9	7,0	6,9	1,0	MDD090A-F-020	liquid	DDS03.2-W015
0	500	0,7	13	13	13	1,5	MDD090B-F-020	liquid	DDS03.2-W015
0	500	0,7	13	14	13	1,5	MDD090B-F-020	liquid	DDS03.2-W030
0	500	0,9	17	17	17	2,0	MDD090C-F-020	liquid	DDS03.2-W030
0	500	1,0	19	20	19	2,1	MDD090C-F-020	liquid	DDS03.2-W050
0	500	0,9	17	18	17	2,0	MDD093A-F-020	liquid	DDS03.2-W030
0	500	1,4	27	28	27	2,9	MDD093B-F-020	liquid	DDS02.2-W050
0	500	1,9	36	37	36	3,5	MDD093C-F-020	liquid	DDS02.2-W050
0	500	1,0	19	19	19	2,2	MDD112A-F-015	liquid	DDS03.2-W015
0	500	1,6	30	30	30	2,6	MDD112B-F-015	liquid	DDS03.2-W050
0	500	1,7	33	33	33	2,9	MDD112B-F-015	liquid	DDS02.2-W050
0	500	2,7	53	53	53	4,5	MDD112C-F-015	liquid	DDS02.2-W050
0	500	3,4	64	64	64	5,5	MDD112D-F-015	liquid	DDS02.2-W050
0	500	3,7	71	72	71	6,0	MDD112D-F-015	liquid	DDS02.2-W100
0	500	5,1	98	98	98	8,9	ADF100D-CS	liquid	DDS02.2-A100
0	500	5,1	98	146	131	8,8	ADF100D-CS	liquid	DDS02.2-A200
0	500	8,0	153	169	169	11,7	ADF132C-ES	liquid	DDS02.2-A200
0	500	11,5	220	220	220	16,2	ADF132D-AS	liquid	DDS02.2-A200

Fig. 2-21: Modular S1 drives with liquid-cooled motors in rotational speed range of 0...500 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-22: S1 drives for direct mains connection with air-cooled and non-cooled motors in rotational speed range of 0...500 min⁻¹

Note: Low motor output speeds should be increased by means of gear ratios (see page 2-5).

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 500...1000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
500	1000	0,7	6,7	7,0	6,7	1,4	MDD090A-F-020	liquid	DDS03.2-W015
500	1000	1,4	13	13	13	2,2	MDD090B-F-020	liquid	DDS03.2-W015
500	1000	1,7	17	18	17	2,9	MDD093A-F-020	liquid	DDS03.2-W030
500	1000	1,8	17	17	17	2,9	MDD090C-F-020	liquid	DDS03.2-W030
500	1000	2,0	19	20	19	3,0	MDD090C-F-020	liquid	DDS03.2-W050
500	1000	2,0	19	20	19	3,2	MDD112A-F-015	liquid	DDS03.2-W030
500	1000	2,8	27	28	27	4,3	MDD093B-F-020	liquid	DDS02.2-W050
500	1000	3,1	30	30	30	4,2	MDD112B-F-015	liquid	DDS03.2-W050
500	1000	3,4	32	33	32	4,6	MDD112B-F-015	liquid	DDS02.2-W050
500	1000	3,7	35	37	35	5,3	MDD093C-F-020	liquid	DDS02.2-W050
500	1000	5,4	52	53	52	7,2	MDD112C-F-015	liquid	DDS02.2-W050
500	1000	6,7	64	64	64	8,8	MDD112D-F-015	liquid	DDS02.2-W050
500	1000	7,4	70	72	70	9,6	MDD112D-F-015	liquid	DDS02.2-W100
500	1000	10,3	98	98	98	14,0	ADF100D-CS	liquid	DDS02.2-A100
500	1000	10,3	98	146	131	14,0	ADF100D-CS	liquid	DDS02.2-A200
500	870	12,5	137	137	137	16,0	ADF132C-ES	liquid	DDS02.2-A100
870	1000	12,5	119	119	119	16,0	ADF132C-ES	liquid	DDS02.2-A100
500	870	14,0	153	169	169	17,6	ADF132C-ES	liquid	DDS02.2-A200
870	1000	14,0	133	147	147	17,6	ADF132C-ES	liquid	DDS02.2-A200
500	870	20,0	220	220	220	24,7	ADF132D-AS	liquid	DDS02.2-A200
870	1000	20,0	191	191	191	24,7	ADF132D-AS	liquid	DDS02.2-A200

Fig. 2-23: Modular S1 drives with liquid-cooled motors in rotational speed range of 500...1000 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2.24: S1 drives for direct mains connections with liquid-cooled motors in rotational speed range of 500...1000 min⁻¹

Note: Low motor output speeds should be increased by means of gear ratios (see page 2-5).

Modular S1 drives with MDD and 2AD connected to regulated DC bus voltage, Rotational speed range 1000...1500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁ min ⁻¹	n ₂ min ⁻¹	P _{dn2} kW	M _{dn2} Nm	M _{kz(10s)} Nm	M _{kz(60s)} Nm	P _{DC} kW	Motor	Cooling	Controller
1000	1500	1,0	6,5	7,0	6,5	1,7	MDD090A-F-020	liquid	DDS03.2-W015
1000	1500	2,0	13	13	13	2,8	MDD090B-F-020	liquid	DDS03.2-W015
1000	1500	2,6	16	18	16	3,7	MDD093A-F-020	liquid	DDS03.2-W030
1000	1500	2,7	17	17	17	3,8	MDD090C-F-020	liquid	DDS03.2-W030
1000	1500	2,9	18	20	18	4,0	MDD090C-F-020	liquid	DDS03.2-W050
1000	1500	3,0	19	19	19	4,1	MDD112A-F-015	liquid	DDS03.2-W015
1000	1500	4,2	27	28	27	5,6	MDD093B-F-020	liquid	DDS02.2-W050
1000	1500	5,0	32	33	32	6,2	MDD112B-F-015	liquid	DDS02.2-W050
1000	1500	5,3	34	37	34	7,0	MDD093C-F-020	liquid	DDS02.2-W050
1000	1500	7,6	48	51	51	9,5	ADF100B-BS	liquid	DDS02.2-W200
1000	1500	7,6	48	82	73	9,5	ADF100B-BS	liquid	DDS02.2-A200
1000	1500	8,0	51	53	51	9,8	MDD112C-F-015	liquid	DDS02.2-W050
1000	1500	10,1	64	64	64	12,2	MDD112D-F-015	liquid	DDS02.2-W050
1000	1500	10,9	69	72	69	13,1	MDD112D-F-015	liquid	DDS02.2-W100
1000	1160	11,9	98	98	98	15,7	ADF100D-CS	liquid	DDS02.2-A100
1160	1500	11,9	76	76	76	15,7	ADF100D-CS	liquid	DDS02.2-A100
1000	1160	11,9	98	146	131	15,6	ADF100D-CS	liquid	DDS02.2-A200
1160	1500	11,9	76	113	101	15,6	ADF100D-CS	liquid	DDS02.2-A200
1000	1500	14,0	89	98	98	17,6	ADF132C-ES	liquid	DDS02.2-A200
1000	1450	19,0	125	127	127	22,6	ADF132C-BS	liquid	DDS02.2-A200
1450	1500	19,0	121	122	122	22,6	ADF132C-BS	liquid	DDS02.2-A200

Fig. 2-25: Modular S1 drives with liquid-cooled motors in rotational speed range of 1000...1500 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-26: S1 drives for direct mains connections with liquid-cooled motors in rotational speed range of 1000...1500 min⁻¹

Note: Low motor output speeds should be increased by means of gear ratios (see page 2-5).

Modular S1 drives with MDD & ADF connected to regulated DC bus voltage									
Rotational speed range 1500...2000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
1500	2000	1,3	6,4	7,0	6,4	2,0	MDD090A-F-020	liquid	DDS03.2-W015
1500	2000	2,6	12	13	12	3,4	MDD090B-F-020	liquid	DDS03.2-W015
1500	2000	3,3	16	18	16	4,5	MDD093A-F-020	liquid	DDS03.2-W030
1500	2000	3,6	17	17	17	4,7	MDD090C-F-020	liquid	DDS03.2-W030
1500	2000	3,7	18	20	18	4,8	MDD090C-F-020	liquid	DDS03.2-W050
1500	2000	3,9	19	20	19	5,3	MDD112A-F-030	liquid	DDS02.2-W050
1500	2000	5,5	26	28	26	7,0	MDD093B-F-020	liquid	DDS02.2-W050
1500	2000	6,5	31	33	31	7,8	MDD112B-F-020	liquid	DDS02.2-W050
1500	2000	6,9	33	37	33	8,5	MDD093C-F-020	liquid	DDS02.2-W050
1500	2000	9,8	47	47	47	11,6	MDD112C-F-020	liquid	DDS02.2-W050
1500	2000	10,3	49	53	49	12,2	MDD112C-F-020	liquid	DDS02.2-W100
1500	2000	12,1	58	58	58	14,6	MDD112D-F-030	liquid	DDS02.2-W200
1500	2000	12,4	59	72	59	15,0	MDD112D-F-030	liquid	DDS02.2-A200
1500	2000	14,9	71	71	71	17,9	ADF100C-BS	liquid	DDS02.2-A200
1500	2000	18,9	90	92	92	22,6	ADF132C-BS	liquid	DDS02.2-A200
1500	2000	20,0	95	95	95	24,6	ADF132D-AS	liquid	DDS02.2-A200

Fig. 2-27: Modular S1 drives with liquid-cooled motors in rotational speed range of 1500...2000 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-28: S1 drives for direct mains connections with liquid-cooled motors in rotational speed range of 1500...2000 min⁻¹

Modular S1 drives with MDD & ADF connected to regulated DC bus voltage									
Rotational speed range 2000...2500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
2000	2500	1,6	6,3	7,0	6,3	2,4	MDD090A-F-030	liquid	DDS03.2-W015
2000	2500	3,0	11	11	11	3,9	MDD090B-F-030	liquid	DDS03.2-W030
2000	2500	3,2	12	14	12	4,1	MDD090B-F-030	liquid	DDS03.2-W050
2000	2500	4,2	16	18	16	5,5	MDD093A-F-030	liquid	DDS02.2-W050
2000	2500	4,6	18	20	18	5,8	MDD090C-F-030	liquid	DDS02.2-W050
2000	2500	4,8	19	20	19	6,2	MDD112A-F-030	liquid	DDS02.2-W050
2000	2500	6,6	25	28	25	8,2	MDD093B-F-030	liquid	DDS02.2-W050
2000	2500	7,9	30	30	30	9,6	MDD093C-F-030	liquid	DDS02.2-W050
2000	2500	8,0	31	31	31	9,4	MDD112B-F-030	liquid	DDS02.2-W050
2000	2500	8,5	33	37	33	10,3	MDD093C-F-030	liquid	DDS02.2-W100
2000	2500	12,7	48	48	48	14,5	MDD112C-F-030	liquid	DDS02.2-W100
2000	2500	15,1	58	58	58	17,6	MDD112D-F-030	liquid	DDS02.2-W200
2000	2500	15,1	58	72	58	17,7	MDD112D-F-030	liquid	DDS02.2-A200
2000	2500	18,9	72	73	73	22,6	ADF132C-BS	liquid	DDS02.2-A200
2000	2500	20,0	76	76	76	24,6	ADF132D-AS	liquid	DDS02.2-A200

Fig. 2-29: Modular S1 drives with liquid-cooled motors in rotational speed range of 2000...2500 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-30: S1 drives for direct mains connections with liquid-cooled motors in rotational speed range of 2000...2500 min⁻¹

Modular S1 drives with MDD & ADF connected to regulated DC bus voltage									
Rotational speed range 2500...3000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
2500	3000	1,9	6	7	6	2,7	MDD090A-F-030	liquid	DDS03.2-W015
2500	3000	3,6	11	11	11	4,5	MDD090B-F-030	liquid	DDS03.2-W030
2500	3000	3,7	12	14	12	4,6	MDD090B-F-030	liquid	DDS03.2-W050
2500	3000	4,9	16	18	16	6,2	MDD093A-F-030	liquid	DDS02.2-W050
2500	3000	5,3	17	20	17	6,6	MDD090C-F-030	liquid	DDS02.2-W050
2500	3000	5,7	18	20	18	7,2	MDD112A-F-040	liquid	DDS02.2-W050
2500	3000	7,7	25	28	25	9,3	MDD093B-F-030	liquid	DDS02.2-W050
2500	3000	9,5	30	31	30	10,8	MDD112B-F-030	liquid	DDS02.2-W050
2500	3000	9,5	30	30	30	11,2	MDD093C-F-030	liquid	DDS02.2-W050
2500	3000	9,9	32	37	32	11,7	MDD093C-F-030	liquid	DDS02.2-W100
2500	3000	15,1	48	48	48	16,9	MDD112C-F-030	liquid	DDS02.2-W100
2500	3000	15,1	48	53	48	17,0	MDD112C-F-030	liquid	DDS02.2-W200
2500	3000	17,7	56	58	56	20,2	MDD112D-F-030	liquid	DDS02.2-W200
2500	3000	17,7	56	62	56	20,2	MDD112D-F-030	liquid	DDS02.2-A100
2500	3000	18,9	60	61	61	22,6	ADF132C-BS	liquid	DDS02.2-A200
2500	3000	20,0	64	64	64	24,6	ADF132D-AS	liquid	DDS02.2-A200

Fig. 2-31: Modular S1 drives with liquid-cooled motors in rotational speed range of 2500...3000 min⁻¹

See „Selection Lists of S1-Drives with DKR-Controllers, DOK-DRIVE*-PRINT*****-AUxx-MS

Fig. 2-32: S1 drives for direct mains connections with liquid-cooled motors in rotational speed range of 2500...3000 min⁻¹

2.6 S1 drives with kit roller motors

Modular S1 drives with MBW connected to regulated DC bus voltage									
Rotational speed range 0...500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
0	500	0,9	18	27	27	1,5	MBW180D-4AL0	natural	DDS03.2-W015
0	500	0,9	18	34	27	1,5	MBW180D-4AL0	natural	DDS03.2-W030
0	500	1,2	23	37	33	2,0	MBW180H-4AL0	natural	DDS03.2-W030
0	500	1,2	23	44	35	2,0	MBW180H-4AL0	natural	DDS03.2-W050
0	500	1,5	28	36	36	2,5	MBW180D-4AL1	surface	DDS03.2-W030
0	500	1,5	28	53	42	2,5	MBW180D-4AL1	surface	DDS03.2-W050
0	500	1,7	33	33	33	2,9	MBW180N-4BL0	natural	DDS03.2-W050
0	500	1,8	35	67	53	3,2	MBW180N-4BL0	natural	DDS02.2-W050
0	500	1,9	36	36	36	3,2	MBW180H-4AL1	surface	DDS03.2-W050
0	500	1,9	37	70	56	3,3	MBW180H-4AL1	surface	DDS02.2-W050
0	500	2,9	55	80	80	4,8	MBW180N-4BL1	surface	DDS02.2-W050
0	500	2,9	55	105	83	5,0	MBW180N-4BL1	surface	DDS02.2-W100
0	500	3,7	70	109	105	5,3	MBW241B-6BL1	surface	DDS02.2-W050
0	500	3,7	70	133	105	5,5	MBW241B-6BL1	surface	DDS02.2-W100
0	500	4,7	90	95	95	6,7	MBW241D-6CL1	surface	DDS02.2-W050
0	500	4,7	90	149	135	6,8	MBW241D-6CL1	surface	DDS02.2-W100
0	500	7,6	145	159	159	10,7	MBW241H-6BL1	surface	DDS02.2-W100
0	500	7,6	145	264	218	10,8	MBW241H-6BL1	surface	DDS02.2-W200
0	450	7,2	154	154	154	8,9	MBW270C-4CL1	surface	DDS02.2-W050
450	500	7,2	138	138	138	8,9	MBW270C-4CL1	surface	DDS02.2-W050
0	450	7,5	160	300	240	9,2	MBW270C-4CL1	surface	DDS02.2-W100
450	500	7,5	144	270	216	9,2	MBW270C-4CL1	surface	DDS02.2-W100
0	450	9,9	210	246	246	12,1	MBW270F-4AL1	surface	DDS02.2-W100
450	500	9,9	189	221	221	12,1	MBW270F-4AL1	surface	DDS02.2-W100
0	450	9,9	210	399	315	12,1	MBW270F-4AL1	surface	DDS02.2-W200
450	500	9,9	189	359	284	12,1	MBW270F-4AL1	surface	DDS02.2-W200
0	500	12,1	230	233	233	15,4	MBW270H-4AL1	surface	DDS02.2-W200
0	500	12,1	230	377	337	15,4	MBW270H-4AL1	surface	DDS02.2-A200

Fig. 2-33: Modular S1 drives with liquid-cooled and non-cooled kit roller motors in rotational speed range of 0...500 min⁻¹

S1 drives for direct mains connection with MBW									
Rotational speed range 0...500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	S _{Netz}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kVA			
0	500	3,4	65	124	98	5,9	MBW241B-6BL1	surface	DKR3.1-W100
0	500	4,3	83	158	125	7,5	MBW241D-6CL1	surface	DKR3.1-W100
0	500	6,8	130	243	195	11,7	MBW241H-6BL1	surface	DKR3.1-W100
0	500	7,9	150	285	225	10,8	MBW270C-4CL1	surface	DKR3.1-W100
0	500	10,5	200	380	300	14,4	MBW270F-4AL1	surface	DKR3.1-W100
0	500	12,1	230	256	256	17,6	MBW270H-4AL1	surface	DKR3.1-W100
0	500	12,1	230	438	346	17,6	MBW270H-4AL1	surface	DKR3.1-W200

Fig. 2-34: S1 drives for direct mains connection with air-cooled and non-cooled kit roller motors in rotational speed range of 0...500 min⁻¹

Modular S1 drives with MBW connected to regulated DC bus voltage									
Rotational speed range 500...1000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
500	1000	1,9	18	27	27	2,5	MBW180D-4AL0	natural	DDS03.2-W015
500	1000	1,9	18	34	27	2,5	MBW180D-4AL0	natural	DDS03.2-W030
500	1000	2,4	23	37	33	3,2	MBW180H-4AL0	natural	DDS03.2-W030
500	1000	2,4	23	44	35	3,2	MBW180H-4AL0	natural	DDS03.2-W050
500	1000	2,9	28	36	36	3,9	MBW180D-4AL1	surface	DDS03.2-W030
500	1000	2,9	28	53	42	3,9	MBW180D-4AL1	surface	DDS03.2-W050
500	1000	3,4	33	33	33	4,6	MBW180N-4BL0	natural	DDS03.2-W050
500	1000	3,7	35	67	53	5,1	MBW180N-4BL0	natural	DDS02.2-W050
500	1000	3,7	36	36	36	5,0	MBW180H-4AL1	surface	DDS03.2-W050
500	1000	3,9	37	70	56	5,3	MBW180H-4AL1	surface	DDS02.2-W050
500	700	5,1	70	109	105	6,7	MBW241B-6BL1	surface	DDS02.2-W050
700	1000	5,1	49	76	74	6,7	MBW241B-6BL1	surface	DDS02.2-W050
500	700	5,1	70	133	105	6,9	MBW241B-6BL1	surface	DDS02.2-W100
700	1000	5,1	49	93	74	6,9	MBW241B-6BL1	surface	DDS02.2-W100
500	1000	5,8	55	80	80	7,7	MBW180N-4BL1	surface	DDS02.2-W050
500	1000	5,8	55	105	83	7,9	MBW180N-4BL1	surface	DDS02.2-W100
500	700	6,6	90	95	95	8,6	MBW241D-6CL1	surface	DDS02.2-W050
700	1000	6,6	63	66	66	8,6	MBW241D-6CL1	surface	DDS02.2-W050
500	700	6,6	90	149	135	8,7	MBW241D-6CL1	surface	DDS02.2-W100
700	1000	6,6	63	105	95	8,7	MBW241D-6CL1	surface	DDS02.2-W100
500	1000	7,2	69	69	69	8,9	MBW270C-4CL1	surface	DDS02.2-W050
500	1000	7,5	72	135	108	9,2	MBW270C-4CL1	surface	DDS02.2-W100
500	1000	9,9	95	110	110	12,1	MBW270F-4AL1	surface	DDS02.2-W100
500	1000	9,9	95	180	142	12,1	MBW270F-4AL1	surface	DDS02.2-W200
500	700	10,6	145	159	159	13,7	MBW241H-6BL1	surface	DDS02.2-W100
700	1000	10,6	102	111	111	13,7	MBW241H-6BL1	surface	DDS02.2-W100
500	700	10,6	145	264	218	13,8	MBW241H-6BL1	surface	DDS02.2-W200
700	1000	10,6	102	185	152	13,8	MBW241H-6BL1	surface	DDS02.2-W200
500	600	14,5	230	233	233	17,8	MBW270H-4AL1	surface	DDS02.2-W200
600	1000	14,5	138	140	140	17,8	MBW270H-4AL1	surface	DDS02.2-W200
500	600	14,5	230	377	337	17,8	MBW270H-4AL1	surface	DDS02.2-A200
600	1000	14,5	138	226	202	17,8	MBW270H-4AL1	surface	DDS02.2-A200

Fig. 2-35: Modular S1 drives with liquid-cooled and non-cooled kit roller motors in rotational speed range of 500...1000 min⁻¹

S1 drives for direct mains connection with MBW									
Rotational speed range 500...1000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	S _{Netz}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kVA			
500	1000	6,8	65	124	98	9,5	MBW241B-6BL1	surface	DKR3.1-W100
500	1000	8,7	83	158	125	11,5	MBW241D-6CL1	surface	DKR3.1-W100
500	700	11,0	150	285	225	13,9	MBW270C-4CL1	surface	DKR3.1-W100
700	1000	11,0	105	200	158	13,9	MBW270C-4CL1	surface	DKR3.1-W100
500	1000	13,6	130	243	195	16,7	MBW241H-6BL1	surface	DKR3.1-W100
500	700	14,7	200	380	300	17,8	MBW270F-4AL1	surface	DKR3.1-W100
700	1000	14,7	140	266	210	17,8	MBW270F-4AL1	surface	DKR3.1-W100
500	900	21,7	230	256	256	25,2	MBW270H-4AL1	surface	DKR3.1-W100
900	1000	21,7	207	230	230	25,2	MBW270H-4AL1	surface	DKR3.1-W100
500	900	21,7	230	438	346	25,2	MBW270H-4AL1	surface	DKR3.1-W200
900	1000	21,7	207	394	311	25,2	MBW270H-4AL1	surface	DKR3.1-W200

Fig. 2-36: S1 drives for direct mains connection with air-cooled and non-cooled kit roller motors in rotational speed range of 500...1000 min⁻¹

Modular S1 drives with MBW connected to regulated DC bus voltage									
Rotational speed range 1000...1500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
1000	1500	1,9	12	18	18	2,5	MBW180D-4AL0	natural	DDS03.2-W015
1000	1500	1,9	12	23	18	2,5	MBW180D-4AL0	natural	DDS03.2-W030
1000	1500	2,4	15	25	22	3,2	MBW180H-4AL0	natural	DDS03.2-W030
1000	1500	2,4	15	29	23	3,2	MBW180H-4AL0	natural	DDS03.2-W050
1000	1500	2,8	18	27	27	4,0	MBW180D-4BL0	natural	DDS03.2-W050
1000	1500	2,8	18	34	27	4,2	MBW180D-4BL0	natural	DDS02.2-W050
1000	1500	3,6	23	43	35	5,3	MBW180H-4BL0	natural	DDS02.2-W050
1000	1500	3,6	23	44	35	5,3	MBW180H-4BL0	natural	DDS02.2-W100
1000	1500	4,4	28	47	42	6,4	MBW180D-4BL1	surface	DDS02.2-W050
1000	1500	4,4	28	53	42	6,5	MBW180D-4BL1	surface	DDS02.2-W100
1000	1500	5,1	33	51	49	6,7	MBW241B-6BL1	surface	DDS02.2-W050
1000	1500	5,1	33	62	49	6,9	MBW241B-6BL1	surface	DDS02.2-W100
1000	1500	5,5	35	40	40	7,7	MBW180N-4AL0	natural	DDS02.2-W050
1000	1500	5,5	35	66	52	7,7	MBW180N-4AL0	natural	DDS02.2-W100
1000	1500	5,8	37	38	38	8,3	MBW180H-4BL1	surface	DDS02.2-W050
1000	1500	5,8	37	70	56	8,4	MBW180H-4BL1	surface	DDS02.2-W100
1000	1500	6,6	42	44	44	8,6	MBW241D-6CL1	surface	DDS02.2-W050
1000	1500	6,6	42	70	63	8,7	MBW241D-6CL1	surface	DDS02.2-W100
1000	1500	7,2	46	46	46	8,9	MBW270C-4CL1	surface	DDS02.2-W050
1000	1500	7,5	48	90	72	9,2	MBW270C-4CL1	surface	DDS02.2-W100
1000	1500	8,6	55	63	63	12,0	MBW180N-4AL1	surface	DDS02.2-W100
1000	1500	8,6	55	104	82	12,0	MBW180N-4AL1	surface	DDS02.2-W200
1000	1500	9,9	63	74	74	12,1	MBW270F-4AL1	surface	DDS02.2-W100
1000	1500	9,9	63	120	95	12,1	MBW270F-4AL1	surface	DDS02.2-W200
1000	1500	10,6	68	74	74	13,7	MBW241H-6BL1	surface	DDS02.2-W100
1000	1500	10,6	68	123	102	13,8	MBW241H-6BL1	surface	DDS02.2-W200
1000	1500	14,5	92	93	93	17,8	MBW270H-4AL1	surface	DDS02.2-W200
1000	1500	14,5	92	151	135	17,8	MBW270H-4AL1	surface	DDS02.2-A200

Fig. 2-37: Modular S1 drives with liquid-cooled and non-cooled kit roller motors in rotational speed range of 1000...1500 min⁻¹

S1 drives for direct mains connection with MBW									
Rotational speed range 1000...1500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	S _{Netz}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kVA			
1000	1100	7,5	65	124	98	10,2	MBW241B-6BL1	surface	DKR3.1-W100
1100	1500	7,5	48	91	72	10,2	MBW241B-6BL1	surface	DKR3.1-W100
1000	1100	9,6	83	158	125	13,1	MBW241D-6CL1	surface	DKR3.1-W100
1100	1500	9,6	61	116	91	13,1	MBW241D-6CL1	surface	DKR3.1-W100
1000	1500	11,0	70	133	105	14,1	MBW270C-4CL1	surface	DKR3.1-W100
1000	1500	14,7	93	177	140	18,0	MBW270F-4AL1	surface	DKR3.1-W100
1000	1100	15,0	130	243	195	20,4	MBW241H-6BL1	surface	DKR3.1-W100
1100	1500	15,0	95	178	143	20,4	MBW241H-6BL1	surface	DKR3.1-W100
1000	1500	21,7	138	153	153	27,7	MBW270H-4AL1	surface	DKR3.1-W100
1000	1500	21,7	138	263	207	27,7	MBW270H-4AL1	surface	DKR3.1-W200

Fig. 2-38: S1 drives for direct mains connection with air-cooled and non-cooled kit roller motors in rotational speed range of 1000...1500 min⁻¹

Modular S1 drives with MBW connected to regulated DC bus voltage									
Rotational speed range 1500...2000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
1500	2000	1,9	9	13	13	2,5	MBW180D-4AL0	natural	DDS03.2-W015
1500	2000	1,9	9	17	14	2,5	MBW180D-4AL0	natural	DDS03.2-W030
1500	2000	2,4	12	19	16	3,2	MBW180H-4AL0	natural	DDS03.2-W030
1500	2000	2,4	12	22	17	3,2	MBW180H-4AL0	natural	DDS03.2-W050
1500	2000	2,9	14	18	18	3,9	MBW180D-4AL1	surface	DDS03.2-W030
1500	2000	2,9	14	27	21	3,9	MBW180D-4AL1	surface	DDS03.2-W050
1500	2000	3,4	16	16	16	4,6	MBW180D-4BL0	natural	DDS03.2-W050
1500	2000	3,8	18	34	27	5,2	MBW180D-4BL0	natural	DDS02.2-W050
1500	2000	4,8	23	43	35	6,5	MBW180H-4BL0	natural	DDS02.2-W050
1500	2000	4,8	23	44	35	6,5	MBW180H-4BL0	natural	DDS02.2-W100
1500	2000	5,1	25	38	37	6,7	MBW241B-6BL1	surface	DDS02.2-W050
1500	2000	5,1	25	47	37	6,9	MBW241B-6BL1	surface	DDS02.2-W100
1500	2000	5,9	28	47	42	7,9	MBW180D-4BL1	surface	DDS02.2-W050
1500	2000	5,9	28	53	42	8,0	MBW180D-4BL1	surface	DDS02.2-W100
1500	2000	6,6	32	33	33	8,6	MBW241D-6CL1	surface	DDS02.2-W050
1500	2000	6,6	32	52	47	8,7	MBW241D-6CL1	surface	DDS02.2-W100
1500	2000	7,7	37	38	38	10,2	MBW180H-4BL1	surface	DDS02.2-W050
1500	2000	7,7	37	70	56	10,3	MBW180H-4BL1	surface	DDS02.2-W100
1500	2000	9,9	47	55	55	12,1	MBW270F-4AL1	surface	DDS02.2-W100
1500	2000	9,9	47	90	71	12,1	MBW270F-4AL1	surface	DDS02.2-W200
1500	1800	10,3	55	63	63	13,7	MBW180N-4AL1	surface	DDS02.2-W100
1800	2000	10,3	49	57	57	13,7	MBW180N-4AL1	surface	DDS02.2-W100
1500	1800	10,3	55	104	82	13,7	MBW180N-4AL1	surface	DDS02.2-W200
1800	2000	10,3	49	94	74	13,7	MBW180N-4AL1	surface	DDS02.2-W200
1500	2000	10,6	51	56	56	13,7	MBW241H-6BL1	surface	DDS02.2-W100
1500	2000	10,6	51	93	76	13,8	MBW241H-6BL1	surface	DDS02.2-W200
1500	2000	14,5	69	70	70	17,8	MBW270H-4AL1	surface	DDS02.2-A200
1500	2000	14,5	69	113	101	17,8	MBW270H-4AL1	surface	DDS02.2-W200

Fig. 2-39: Modular S1 drives with liquid-cooled and non-cooled kit roller motors in rotational speed range of 1500...2000 min⁻¹

S1 drives for direct mains connection with MBW									
Rotational speed range 1500...2000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	S _{Netz}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kVA			
1500	2000	7,5	36	68	54	10,2	MBW241B-6BL1	surface	DKR3.1-W100
1500	2000	9,6	46	87	68	13,1	MBW241D-6CL1	surface	DKR3.1-W100
1500	2000	11,0	53	100	79	14,1	MBW270C-4CL1	surface	DKR3.1-W100
1500	2000	14,7	70	133	105	18,8	MBW270F-4AL1	surface	DKR3.1-W100
1500	2000	15,0	72	134	107	20,4	MBW241H-6BL1	surface	DKR3.1-W100
1500	2000	21,7	104	115	115	27,7	MBW270H-4AL1	surface	DKR3.1-W100
1500	2000	21,7	104	197	156	27,7	MBW270H-4AL1	surface	DKR3.1-W200

Fig. 2-40: S1 drives for direct mains connection with air-cooled and non-cooled kit roller motors in rotational speed range of 1500...2000 min⁻¹

Modular S1 drives with MBW connected to regulated DC bus voltage									
Rotational speed range 2000...2500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
2000	2500	1,9	7	11	11	2,5	MBW180D-4AL0	natural	DDS03.2-W015
2000	2500	1,9	7	14	11	2,5	MBW180D-4AL0	natural	DDS03.2-W030
2000	2500	2,4	9	17	14	3,2	MBW180H-4AL0	natural	DDS03.2-W050
2000	2500	2,4	9	17	14	3,2	MBW180H-4AL0	natural	DDS03.2-W050
2000	2500	2,9	11	14	14	3,9	MBW180D-4AL1	surface	DDS03.2-W030
2000	2500	2,9	11	21	17	3,9	MBW180D-4AL1	surface	DDS03.2-W050
2000	2500	3,4	13	13	13	4,6	MBW180D-4BL0	natural	DDS03.2-W050
2000	2500	3,8	14	27	22	5,2	MBW180D-4BL0	natural	DDS02.2-W050
2000	2500	4,8	18	35	28	6,5	MBW180H-4BL0	natural	DDS02.2-W050
2000	2500	4,8	18	35	28	6,5	MBW180H-4BL0	natural	DDS02.2-W100
2000	2500	5,1	20	31	29	6,7	MBW241B-6BL1	surface	DDS02.2-W050
2000	2500	5,1	20	37	29	6,9	MBW241B-6BL1	surface	DDS02.2-W100
2000	2500	5,9	22	37	34	7,9	MBW180D-4BL1	surface	DDS02.2-W050
2000	2500	5,9	22	43	34	8,0	MBW180D-4BL1	surface	DDS02.2-W100
2000	2500	6,6	25	29	29	8,8	MBW180N-4AL0	natural	DDS02.2-W050
2000	2500	6,6	25	48	38	8,8	MBW180N-4AL0	natural	DDS02.2-W100
2000	2500	6,6	25	27	27	8,6	MBW241D-6CL1	surface	DDS02.2-W050
2000	2500	6,6	25	42	38	8,7	MBW241D-6CL1	surface	DDS02.2-W100
2000	2500	7,7	30	30	30	10,2	MBW180H-4BL1	surface	DDS02.2-W050
2000	2500	7,7	30	56	44	10,3	MBW180H-4BL1	surface	DDS02.2-W100
2000	2500	9,9	38	44	44	12,1	MBW270F-4AL1	surface	DDS02.2-W100
2000	2500	9,9	38	72	57	12,1	MBW270F-4AL1	surface	DDS02.2-W200
2000	2500	10,3	39	45	45	13,7	MBW180N-4AL1	surface	DDS02.2-W100
2000	2500	10,3	39	75	59	13,7	MBW180N-4AL1	surface	DDS02.2-W200
2000	2500	10,6	41	44	44	13,7	MBW241H-6BL1	surface	DDS02.2-W100
2000	2500	10,6	41	74	61	13,8	MBW241H-6BL1	surface	DDS02.2-W200
2000	2500	14,5	55	56	56	17,8	MBW270H-4AL1	surface	DDS02.2-W200
2000	2500	14,5	55	90	81	17,8	MBW270H-4AL1	surface	DDS02.2-A200

Fig. 2-41: Modular S1 drives with liquid-cooled and non-cooled kit roller motors in rotational speed range of 2000...2500 min⁻¹

S1 drives for direct mains connection with MBW									
Rotational speed range 2000...2500min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	S _{Netz}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kVA			
2000	2500	7,5	29	54	43	10,2	MBW241B-6BL1	surface	DKR3.1-W100
2000	2500	9,6	37	69	55	13,1	MBW241D-6CL1	surface	DKR3.1-W100
2000	2500	11,0	42	80	63	14,1	MBW270C-4CL1	surface	DKR3.1-W100
2000	2500	14,7	56	106	84	18,8	MBW270F-4AL1	surface	DKR3.1-W100
2000	2500	15,0	57	107	86	20,4	MBW241H-6BL1	surface	DKR3.1-W100
2000	2500	21,7	83	92	92	27,7	MBW270H-4AL1	surface	DKR3.1-W100
2000	2500	21,7	83	158	124	27,7	MBW270H-4AL1	surface	DKR3.1-W200

Fig. 2-42: S1 drives for direct mains connection with air-cooled and non-cooled kit roller motors in rotational speed range of 2000...2500 min⁻¹

Modular S1 drives with MBW connected to regulated DC bus voltage									
Rotational speed range 2500...3000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	P _{DC}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kW			
2500	3000	1,9	6,0	9	9	2,5	MBW180D-4AL0	natural	DDS03.2-W015
2500	3000	1,9	6,0	11	9	2,5	MBW180D-4AL0	natural	DDS03.2-W030
2500	3000	2,4	7,7	15	12	3,2	MBW180H-4AL0	natural	DDS03.2-W050
2500	3000	2,4	7,7	15	12	3,2	MBW180H-4AL0	natural	DDS03.2-W050
2500	3000	2,9	9,3	12	12	3,9	MBW180D-4AL1	surface	DDS03.2-W030
2500	3000	2,9	9,3	18	14	3,9	MBW180D-4AL1	surface	DDS03.2-W050
2500	3000	3,4	11	11	11	4,6	MBW180D-4BL0	natural	DDS03.2-W050
2500	3000	3,8	12	23	18	5,2	MBW180D-4BL0	natural	DDS02.2-W050
2500	3000	4,8	15	29	23	6,5	MBW180H-4BL0	natural	DDS02.2-W050
2500	3000	4,8	15	29	23	6,5	MBW180H-4BL0	natural	DDS02.2-W100
2500	3000	5,1	16	25	25	6,7	MBW241B-6BL1	surface	DDS02.2-W050
2500	3000	5,1	16	31	25	6,9	MBW241B-6BL1	surface	DDS02.2-W100
2500	3000	5,9	19	31	28	7,9	MBW180D-4BL1	surface	DDS02.2-W050
2500	3000	5,9	19	35	28	8,0	MBW180D-4BL1	surface	DDS02.2-W100
2500	3000	6,6	21	24	24	8,8	MBW180N-4AL0	natural	DDS02.2-W050
2500	3000	6,6	21	40	31	8,8	MBW180N-4AL0	natural	DDS02.2-W100
2500	3000	6,6	21	22	22	8,6	MBW241D-6CL1	surface	DDS02.2-W050
2500	3000	6,6	21	35	32	8,7	MBW241D-6CL1	surface	DDS02.2-W100
2500	3000	7,7	25	25	25	10,2	MBW180H-4BL1	surface	DDS02.2-W050
2500	3000	7,7	25	47	37	10,3	MBW180H-4BL1	surface	DDS02.2-W100
2500	3000	9,9	32	37	37	12,1	MBW270F-4AL1	surface	DDS02.2-W100
2500	3000	9,9	32	60	47	12,1	MBW270F-4AL1	surface	DDS02.2-W200
2500	3000	10,3	33	38	38	13,7	MBW180N-4AL1	surface	DDS02.2-W100
2500	3000	10,3	33	62	49	13,7	MBW180N-4AL1	surface	DDS02.2-W200
2500	3000	10,6	34	37	37	13,7	MBW241H-6BL1	surface	DDS02.2-W100
2500	3000	10,6	34	62	51	13,8	MBW241H-6BL1	surface	DDS02.2-W200
2500	3000	14,5	46	47	47	17,8	MBW270H-4AL1	surface	DDS02.2-W200
2500	3000	14,5	46	75	67	17,8	MBW270H-4AL1	surface	DDS02.2-A200

Fig. 2-43: Modular S1 drives with liquid-cooled and non-cooled kit roller motors in rotational speed range of 2500...3000 min⁻¹

S1 drives for direct mains connection with MBW									
Rotational speed range 2500...3000min ⁻¹									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
n ₁	n ₂	P _{dn2}	M _{dn2}	M _{kz(10s)}	M _{kz(60s)}	S _{Netz}	Motor	Cooling	Controller
min ⁻¹	min ⁻¹	kW	Nm	Nm	Nm	kVA			
2500	3000	7,5	24	45	36	10,2	MBW241B-6BL1	surface	DKR3.1-W100
2500	3000	9,6	30	58	46	13,1	MBW241D-6CL1	surface	DKR3.1-W100
2500	3000	11,0	35	67	53	14,1	MBW270C-4CL1	surface	DKR3.1-W100
2500	3000	14,7	47	89	70	18,8	MBW270F-4AL1	surface	DKR3.1-W100
2500	3000	15,0	48	89	72	20,4	MBW241H-6BL1	surface	DKR3.1-W100
2500	3000	21,7	69	77	77	27,7	MBW270H-4AL1	surface	DKR3.1-W100
2500	3000	21,7	69	131	104	27,7	MBW270H-4AL1	surface	DKR3.1-W200

Fig. 2-44: S1 drives for direct mains connection with air-cooled and non-cooled kit roller motors in rotational speed range of 2500...3000 min⁻¹

Notes

3 Protocol of the selected drive

3.1 Information about the machine

Date _____

Company _____

Name _____

Machine type _____

Machine components _____

Miscellaneous _____

3.2 Information about the drive

Motor/controller combination

Motor (8) _____

Cooling (9) _____

Controller (10) _____

Important drive data

Rotational speed range of
 $n_1(1) \dots n_2(2)$ _____

Maximum continuous power
 P_{dn2} (3) _____

Continuous torque M_{dn2} (4) _____

Short-term torque $M_{kz(10s)}$ (5) _____

Short-term torque $M_{kz(60s)}$ (6) _____

Data on supply module dimensioning (only with DDS)

Maximum DC bus continuous
output P_{DC} (7) _____

Data on mains connection dimensioning (only with DKR)

Mains connection output
 S_{Netz} (7) _____

Data on the dimensioning or control of braking resistance

Maximum regenerated power _____

Calculated regenerated power _____

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