

Maskinsystem

Standard för val av Siemens Simatic TIA komponenter

Machine Systems

Standard for selection of Siemens Simatic TIA components

Std 23-20

Version: 16.0

Ändringslogg / Change log

Version	Logg	Log	Datum / Date
14.0	Nytt dokument	New document	2015-06-26
14.1	Ändrat CPU 1517F till 1515F	Changed CPU 1517F to 1515F	2016-01-20
16.0	Nytt versionsnummer	New version number	2016-06-09

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1 SIMATIC S7-1500 Modular Controller

The SIMATIC S7-1500 controller is the new generation of controllers in the TIA Portal and marks a milestone in automation. It ensures highest efficiency and maximum usability for medium and high-end applications in machine and system automation, innovative design and ease of handling for easiest possible use and commissioning as well as safe operation.

The fail-safe SIMATIC controllers enable the processing of standard and safety programs on a single controller.



SIMATIC S7-1500F, CPU 1515F-2 PN	6ES7515-2FM01-0AB0
SIMATIC S7-1500F, CPU 1518F-4 PN/DP	6ES7518-4FP00-0AB0
SIMATIC S7-1500, MOUNTING RAIL 160 MM	6ES7590-1AB60-0AA0
SIMATIC S7, MEMORY CARD FOR S7-1X00 CPU, 256 MBYTE	6ES7954-8LL02-0AA0
SIMATIC S7-1500, Digital input, DI 16x24VDC BA, INCL. FRONT CONNECTOR PUSH-IN	6ES7521-1BH1-0AA0
SIMATIC S7-1500, Digital output, DQ 16x24VDC/0.5A BA, INCL. FRONT CONNECTOR PUSH-IN	6ES7522-1BH1-0AA0

2 SIMATIC HMI Comfort Panels

All SIMATIC HMI Comfort Panels universally provide the same high-end functionality. Wide-screen TFT displays with 7", 12", 15", 19" diagonals (all 16 million colours).

Up to 40% more visualization area as compared to the predecessor devices.



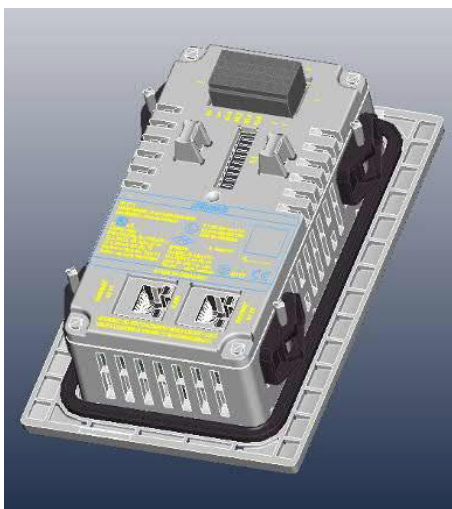
SIMATIC HMI TP700 Comfort	6AV2124-0GC01-0AX0
SIMATIC HMI TP1200 Comfort	6AV2124-0MC01-0AX0
SIMATIC HMI TP1500 Comfort	6AV2124-0QC02-0AX0
SIMATIC HMI TP1900 Comfort	6AV2124-0UC02-0AX0
Protective film 7" widescreen	6AV2124-6GJ00-0AX0
Protective film 12" widescreen	6AV2124-6MJ00-0AX0
Protective film 15" widescreen	6AV2124-6QJ00-0AX1
Protective film 19" widescreen	6AV2124-6UJ00-0AX1
SD card, 2 GB for Comfort Panels	6AV2181-8XP00-0AX0

3 SIMATIC HMI Key Panels, KP8 PN and KP8F PN

The KP8 PN can be freely configured and is also available with safety functionality.

8 large, freely configurable keys with LED background lighting with adjustable brightness. The key panel can be individually labeled with 2 labeling strips.

Freely configurable color (red, green, blue, white, yellow). Integrated light and button test after turning on, IP65 from front.



SIMATIC HMI KP8 PN KEY PANEL	6AV3688-3AY36-0AX0
SIMATIC HMI KP8F PN KEY PANEL, INTERFACE WITH PROFISAFE	6AV3688-3AF37-0AX0

4 SIMATIC ET 200SP Distributed I/O, Systems for Control Cabinets

SIMATIC ET 200SP systems used in control cabinets feature multifunctional, modular systems and a compact block I/O. Their versatility enables you to implement an extremely wide range of automation solutions for your distributed I/Os quickly and flexible.



ET200 SP IM 155-6 PN ST incl. bus adapter 2xRJ45 incl. server module	6ES7155-6AA00-0BN0
ET200 SP DI 8x24VDC/0.5A HF	6ES7131-6BF00-0CA0
ET200 SP DI 16x24VDC ST	6ES7131-6BH00-0BA0
ET200 SP DQ 8x24VDC/0.5A HF	6ES7132-6BF00-0CA0
ET200 SP AI 4xI 2-wire ST	6ES7134-6GD00-0BA1
ET200 SP AI 4xU/I 2-wire ST	6ES7134-6HD00-0BA1
ET200 SP AI 4xRTD/TC 2-,3-,4-wire HF	6ES7134-6JD00-0CA1
ET200 SP AQ 4xU/I ST	6ES7135-6HD00-0BA1
ET200 SP BU type A0, 16 push-in,10 AUX, 2 supply term. jumpered	6ES7193-6BP20-0BA0
ET200 SP BU type A0, 16 push-in,10 AUX, 2 supply term. separate	6ES7193-6BP20-0DA0
ET200 SP Failsafe 4 F-DQ DC24V/ 2A PM HF	6ES7136-6DB00-0CA0
ET200 SP Failsafe 8 F-DI DC24V HF	6ES7136-6BA00-0CA0
ET200 SP Failsafe Power module	6ES7136-6PA00-0BC0
ET200 SP Base unit for ET 200SP	6ES7193-6BP20-0DC0

5 SIMATIC ET 200SP F Distributed Controller

SIMATIC ET 200SP CPUs with PROFINET feature the same functionalities as the of the S7-1500F controller system, e.g. integrated trace function, integrated system diagnostics, integrated security, web server and fully symbolic programming.

The fail-safe SIMATIC controllers enable the processing of standard and safety programs on a single controller.



SIMATIC S7-1500F, CPU 1512SP F-1 PN	6ES7512-1SK00-0AB0
SIMATIC S7-1500 ,RAIL WIDTH 35MM, LENGTH 483MM FOR 19 IN.CABINETS	6ES710-8MA11
SIMATIC S7, MEMORY CARD FOR S7-1X00 CPU, 4 MBYTE	6ES7954-8LC02-0AA0
SIMATIC Bus Adapter BA 2xRJ45	6ES7193-6AR00-0AA0
SIMATIC DP, CM PROFIBUS DP FOR ET 200SP CPU MODULE WITH PROFIBUS DP INTERF, DP-MASTER FOR 125 DP-SLAVES	6ES7545-5DA00-0AB0

6 SIMATIC ET 200Pro Distributed I/O, Systems without Control cabinets

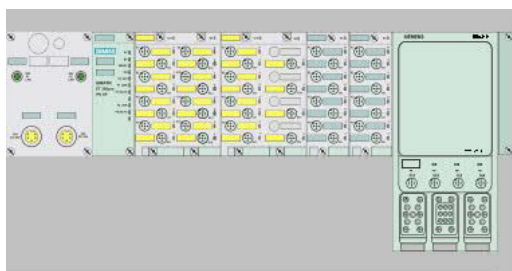
ET 200pro is characterized by a comprehensive range of modules:

power modules, digital and analogue I/O modules, motor starters and an RFID module

The modules of the ET 200pro usually have two or three components.

Interface and power modules as well as digital and analog expansion modules comprise:

- one bus connector which constitutes the backplane bus of the system
- one electronics module or interface module
- one connecting module



Rail for ET200PRO, L=500mm	6ES7194-4GA00-0AA0
ET 200Pro, IM 154-4 PN HF interface module	6ES7154-4AB10-0AB0
ET 200Pro IM 154-8F PN/DP PLC, 512KB work memory	6ES7154-8FB01-0AB0
ET 200Pro, CM IM PN connecting module M12, 7/8"	6ES7194-4AJ00-0AA0
ET 200Pro, EM141 8DI High Feature	6ES7141-4BF00-0AB0
ET 200Pro, EM141 8DI Standard	6ES7141-4BF00-0AA0
ET 200Pro, EM142 8DO/ 0,5A Standard	6ES7142-4BF00-0AA0
ET 200Pro, Connecting module for DI /DO, 8xM12	6ES7194-4CB00-0AA0
ET 200Pro, EM142 4DO/ 2A High Feature	6ES7142-4BD00-0AB0
ET 200Pro, EM142 4DO/ 2A Standard	6ES7142-4BD00-0AA0
ET 200Pro, EM144 4AI U High Feature	6ES7144-4FF01-0AB0
ET 200Pro, EM144 4AI I High Feature	6ES7144-4GF01-0AB0
ET 200Pro, EM144 4AO U High Feature	6ES7145-4FF00-0AB0
ET 200Pro, EM144 4AO I High Feature	6ES7145-4GF00-0AB0
ET 200Pro, Connecting module for DI/DO,AI/AO,4xM12	6ES7194-4CA00-0AA0
ET 200Pro, Failsafe module 8/16F DI	6ES7148-4FA00-0AB0
ET 200Pro, Failsafe module 4/8 F-DI / 4 F-DO	6ES7148-4FC00-0AB0
ET 200Pro, Connecting module for 8/16F DI	6ES7194-4DD00-0AA0
ET 200Pro, Connecting module for 4/8F DI / 4F DO	6ES7194-4DC00-0AA0
ET 200Pro, F Switch PROFIsafe digital electronic module	6ES7148-4FS00-0AB0
ET 200Pro, Connection module for F Switch PROFIsafe (2xM12)	6ES7194-4DA00-0AA0
ET 200Pro, Safety switch	3RK1304-0HS00-6AA0
ET 200Pro, High-Feature reversing starter 0,15-2,0 A 400VAC with brake contact	3RK1304-5KS70-3AA3
ET 200Pro, High-Feature reversing starter 1,5-12 A 400VAC with brake contact	3RK1304-5LS70-3AA3

7 SCALANCE Industrial Communication

For universal use, from machine-level applications to networked subsystems. Configuration and remote diagnosis are integrated into the STEP 7 engineering tool. This increases the plant availability.

Devices with a high degree of protection permit cabinet less installation. Profinet, LED diagnostics, fault signal, redundant power supply, network management, operate in redundant ring.



PN/PN COUPLER	6ES7158-3AD01-0XA0
IE/PB Link PN IO	6GK1411-5AB00
SCALANCE X208, Managed IE Switch, 8 X 10/100MBIT/S RJ45 Ports	6GK5208-0BA10-2AA3
SCALANCE X216, Managed IE Switch, 16 X 10/100MBIT/S RJ45 Ports	6GK5216-0BA00-2AA3
SCALANCE X224, Managed IE Switch, 24 X 10/100MBIT/S RJ45 Ports	6GK5224-0BA00-2AA3
SCALANCE X208PRO, Managed IE Switch, 8X10/100MBIT/S M12-PORTS, IP65/67	6GK5208-0HA10-2AA6
C- Plug replaceable	6GK1 900-0AB00
For simple devise exchange in case of failure, for storage of configuration or user data, application in Simatic Net products with C-plug slot. Storage of configuration or user data	
IE FC RJ45 PLUG 180 2X2, RJ45 PLUG	6GK1 901-1BB10-2AA0
IE FC RJ45 PLUG 90 2X2, RJ45 PLUG	6GK1 901-1BB20-2AA0
IE FC M12 PLUG PRO 2X2 M12 PLUG	6GK1901-0DB20-6AA0
SIMATIC NET, IE FC TP STANDARD CABLE, GP 2X2 (PROFINET TYP A)	6XV1840-2AH10



Fast Connect Stripping tool	6GK1901-1GA00
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8 SINAMICS Distributed frequency converters

SINAMICS G120D is a modular converter system with IP65 degree of protection and made up of various functional units.

The main ones are:

- Control unit (CU)
- Power module (PM)



G120D CU240D-2 PN PROFINET, <u>Not failsafe, only safe torque off</u>	6SL3544-0FB20-1FA0
G120D CU240D-2 PN F, Profinet	6SL3544-0FB21-1FA0
SINAMICS SD-CARD 512 MB	6SL3054-4AG00-2AA0
G120D CU250D-2 PN F, HTL and SSI encoder interface, Profinet	6SL3546-0FB21-1FA0
SINAMICS SD-CARD 512 MB Empty E01: License G120 Extended function	6SL3054-4AG00-2AA0-Z+E01
G120D 0,75 kW, FSA, Power module	6SL3525-0PE17-5AA1
G120D 1,5 kW, FSA, Power module	6SL3525-0PE21-5AA1
G120D 3 kW, FSB, Power module	6SL3525-0PE23-0AA1
G120D 4 kW, FSC, Power module	6SL3525-0PE24-0AA1
G120D 5,5 kW, FSC, Power module	6SL3525-0PE25-5AA1
G120D 7,5 kW, FSC, Power module	6SL3525-0PE27-5AA1
IOP Handheld For use with SINAMICS G120D	6SL3255-0AA00-4HA0
RS232 connecting cable, 2,5m, with optical interface to connect the G120D	3RK1922-2BP00
Power cable for 24V DC, 1-15 meters pre assembled	6XV1822-5BXX
<i>Safety switch</i>	3RK1911-4AB08
Supply cable open end, 4x2,5mm ² , 1,5m	HTG:61 88 201 0192
Motor cable, 4x1,5mm ² + 2x(2x0,75mm ²)	HTG:61 88 201 0288
Harting Female insert for Han Q4/2	HTG:61 83 401 0248
Harting male insert for Han Q8/0	HTG:61 83 401 0131
Harting Daisy Chain Power Y-splitter	HTG:61 88 201 0509
Safety switch direct connection to G120D on supply side	HTG:61 88 201 0609

9 SINAMICS Frequency Converters, mounted in Cabinet

SINAMICS G120 is a modular inverter system that essentially comprises two function units:

- Control Unit (CU)
- Power Module (PM)

PM250 Power Modules has the possibility of regeneration

The Basic Operator Panel BOP-2 can be used to commission drives, monitor drives in operation and input individual parameter settings



SINAMICS G120 Control Unit CU250S-2 PN-F	6SL3246-0BA22-1FA0
PM250 Power Module, 7,5 kW, with integrated line filter class A	6SL3225-0BE27-5AA1
PM250 Power Module, 11 kW, with integrated line filter class A	6SL3225-0BE31-1AA1
PM250 Power Module, 15 kW, with integrated line filter class A	6SL3225-0BE31-5AA0
PM250 Power Module, 18,5 kW, with integrated line filter class A	6SL3225-0BE31-8AA0
PM250 Power Module, 22 kW, with integrated line filter class A	6SL3225-0BE32-2AA0
PM250 Power Module, 30 kW, with integrated line filter class A	6SL3225-0BE33-0AA0
SINAMICS G120 Basic Operator Panel (BOP-2)	6SL3255-0AA00-4CA1
SINAMICS G120 INTELLIGENT OPERATOR PANEL(IOP)	6SL3255-0AA00-4JA1
SINAMICS SD-CARD 512 MB Empty E01: License G120 Extended function EPOS	6SL3054-4AG00-2AA0-Z+E01
SINAMICS SD-CARD 512 MB	6SL3054-4AG00-2AA0

10 SINAMICS Single-axis Frequency Converters Mounted in Cabinet, for positioning

With its separate power units and Control Units, the SINAMICS S120 drive system can be perfectly adapted to a wide variety of different drive tasks. The frequency converters have integrated line filters.



Sinamics S120, CU310-2 PN, CONTROL UNIT	6SL3040-1LA01-0AA0
SINAMICS S120 POWER MODULE PM240-2, 2,2 kW	6SL3210-1PE18-0AL1
SINAMICS S120 POWER MODULE PM240-2, 3 kW	6SL3210-1PE21-1AL0
SINAMICS S120 POWER MODULE PM240-2, 4 kW	6SL3210-1PE21-4AL0
SINAMICS S120 POWER MODULE PM240-2, 7,5 kW	6SL3210-1PE22-7AL0
SINAMICS S120 POWER MODULE PM240-2, 11 kW	6SL3210-1PE23-3AL0
SINAMICS S120 POWER MODULE PM240-2, 15 kW	6SL3210-1PE23-8AL0
SINAMICS S120 POWER MODULE PM240-2, 18,5 kW	6SL3210-1PE24-5AL0
SINAMICS S120 POWER MODULE PM240-2, 22 kW	6SL3210-1PE26-0AL0
SINAMICS S120 COMPACTFLASH CARD WITH FIRMWARE OPTION V4.7	6SL3054-0EH00-1BA0

11 S I R I U S Power Contactors for Switching Motors, sizes S00 and S0, up to 18.5 kW

The 3RT2 contactors are climate-proof and are suitable and tested for use worldwide

Size S00 contactors have an auxiliary contact integrated in the basic unit.

The basic units size S0 contain two integrated auxiliary contacts (1 NO + 1 NC). Additional auxiliary switches with a maximum of four auxiliary contacts can be mounted.



S00, Motor 3kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 15-1BB41
S00, Motor 3kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 15-1BB42
S00, Motor 4kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 16-1BB41
S00, Motor 4kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 16-1BB42
S00, Motor 5,5kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 17-1BB41
S00, Motor 5,5kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 17-1BB42
S00, Motor 7,5kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 18-1BB41
S00, Motor 7,5kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 18-1BB42
S0, Motor 11kW, DC operation DC 24V, Auxiliary contact 1NO+1NC	3RT20 26-1BB40
S0, Motor 15kW, DC operation DC 24V, Auxiliary contact 1NO+1NC	3RT20 27-1BB40
S0, Motor 18,5kW, DC operation DC 24V, Auxiliary contact 1NO+1NC	3RT20 28-1BB40
With integrated coil circuit (diode)	
S00, Motor 3kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 15-1FB41
S00, Motor 3kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 15-1FB42
S00, Motor 4kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 16-1FB41
S00, Motor 4kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 16-1FB42
S00, Motor 5,5kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 17-1FB41
S00, Motor 5,5kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 17-1FB42
S00, Motor 7,5kW, DC operation DC 24V, Auxiliary contact 1NO	3RT20 18-1FB41
S00, Motor 7,5kW, DC operation DC 24V, Auxiliary contact 1NC	3RT20 18-1FB42
Additional auxiliary switch blocks	3RH29 11-.

SIRIUS 3RH21 coupling relays for switching auxiliary circuits, 4-pole
(No auxiliary switch blocks can be mounted)

Size S00 With integrated coil circuit (diode), 4NO	3RH21 40-1KB40
Size S00 With integrated coil circuit (diode), 3NO+1NC	3RH21 31-1KB40
Size S00 With integrated coil circuit (diode), 2NO+2NC	3RH21 22-1KB40

12 SIRIUS Motor Starters 3RM1

3RM12 motor starter with reversing functionality and electronic overload protection SIRIUS 3RM1 motor starters are compact devices with a width of 22.5 mm, combining a large number of functions in a single enclosure.

They consist of combinations of relay contacts, power

semiconductors (hybrid technology), and a solid-state overload relay for operational switching of three-phase motors up to 3 kW (at 400 V) and resistive loads up to 10 A at AC voltages up to 500 V.



3RM12 reversing starters, $U_s = 24 \text{ V DC}$, 0.1 ... 0.5A	3RM1201-1AA04
3RM12 reversing starters, $U_s = 24 \text{ V DC}$, 0.4 ... 2A	3RM1202-1AA04
3RM12 reversing starters, $U_s = 24 \text{ V DC}$, 1.6 ... 7A	3RM1207-1AA04
3RM13 safety reversing starters, $U_s = 24 \text{ V DC}$, 0.1 ... 0.5A	3RM1301-1AA04
3RM13 safety reversing starters, $U_s = 24 \text{ V DC}$, 0.4 ... 2A	3RM1302-1AA04
3RM13 safety reversing starters, $U_s = 24 \text{ V DC}$, 1.6 ... 7A	3RM1307-1AA04
3RM19 three-phase infeed system for 3RM1 with screw terminals	3RM19XX-XXX
Device connector for motor starter 3RM1, width 22.5 mm	3ZY1212-2EA00
Device connector for signal loop-through 3RM1, width 22.5 mm	3ZY1212-2AB00
Device termination connector for motor starter 3RM1, width 22.5 MM	3ZY1212-2FA00

13 SIRIUS Motor Starter Protectors

The 3RV2 motor starter protectors are available in two sizes:

- Size S00 - width 45 mm, max. rated current 16 A, at 400 V AC suitable for induction motors up to 7.5 kW.
- Size S0 - width 45 mm, max. rated current 40 A, at 400 V AC suitable for induction motors up to 18.5 kW.

Short-circuit breaking capacity up to 100kA at 400 V AC

The starters below can be ordered with integrated transverse auxiliary switch



S00, Protectors up to 16 A	3RV20 11-XXXXX
S0, Protectors up to 40 A	3RV20 21-XXXXX
Additional auxiliary switch blocks	3RV29 01-XX

14 SENTRON Miniature Circuit Breakers

In industrial applications and plant engineering, miniature circuit breakers can be supplemented with additional components, such as auxiliary switches, fault signal contacts, shunt trips, under voltage releases, remote controlled mechanism and RC units. The devices are approved for worldwide use according to IEC standards

up to 250/440 V AC. 72 V DC per pole permitted in DC systems.

The 5SY MCB are ideal for the quick and easy mounting of auxiliary switches and fault signal contacts.



MCB 10kA Characteristic A, B, C or D, 1-pole	5SY41.....
MCB 10kA Characteristic A, B, C or D, 2-pole	5SY42.....
MCB 10kA Characteristic A, B, C or D, 3-pole	5SY43.....
Undervoltage releases (UR) for 5SY	5ST3 040
Auxiliary switches (AS)	5ST3 010
Handle locking devices	5ST3 801
Fault Signal Contact	5ST302
RES.CUR.OP.CIRCUIT BREAKER TYPE A 25A 1+N-POLE 30MA 230V 2MW N-LEFT	5SV3312-6KL
RES.CUR.OP.CIRCUIT BREAKER TYPE A 40A 3+N-POLE 300MA 400V 4MW N-LEFT	5SV3644-6KL

15 SIMOGEAR, Geared Motors

	Helical geared motor	Parallel shaft geared motors	Bevel geared motor 2-stage	Bevel geared motor 3-stage	Worm geared motor 2-stage	Worm geared motor 1-stage
						
Gearbox designation	E39...E149 (1-stage) Z19...Z189 (2-stage) D19...D189 (3-stage)	FZ29...FZ229 (2-stage) FD29...FD229 (3-stage)	B19...B49 (2-stage)	K39...K229 (3-stage)	C29...C89 (2-stage)	S09...S29 (1-stage)
Number of gearbox sizes	7 (1-stage) 13 (2-/3-stage)	13	4	12	5	3
Rated gearbox torque [Nm]	90...20.000	150...50.000	50...450	220...50.000	100...1600	18...80
Gearbox ratio	1.1...10 (1-stage) 3,4...60,97 (2-stage) 39,34...330 (3-stage) 250...50.000 (multi-stage)	3,57...60,21 (2-stage) 46,36...357 (3-stage) 250...50.000 (multi-stage)	3,47...59,28 (2-stage)	5,17...244 (3-stage) 250...50.000 (multi-stage)	10...290 (2-stage) 250...25.000 (multi-stage)	5...100 (1-stage)
Max. motor power [kW]	200	200	7,5	200	15	0,75

The 2-stage bevel gear unit is specifically designed for conveyor applications. It has an efficiency of more than 96%, and has ratios extending up to $i=60$.

IE3 motors shall be used.

Bevel geared motors for position task shall be in version KW, reduced-backlash version. Option: G99.

Product	Type 2-stage	[Nm]	$i_{max} - i_{min}$	Solid shaft	Hollow shaft	Hollow shaft	Shrink disc shaft	Shaft height h	Foot print a x b	Flange diameter	Centering
	SH 50...60 T2n 30 ... 90 Nm										
SIMOGEAR	B19	nA	nA	20 x 40	18/20		20	50	60 x 75	110/120	C85
	SH 63...65 T2n 90 ... 130 Nm										
SIMOGEAR	B29	130	3,70 – 45,20	20 x 40	20/25		20	63	70 x 90	120/160	C102
	SH 75...80 T2n 200 ... 250 Nm										
SIMOGEAR	B39	250	3,12 – 56,36	30 x 60	30/35	40	35	80	100 x 100	160/200	C135
	SH 100...112 T2n 350 ... 660 Nm										
SIMOGEAR	B49	450	3,12 – 56,36	35 x 70	40		40	100	120 x 125	200/250	C135