

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible			Notes (footnotes are applicable line by line)	Order-No. Type (for complete Order-No., see notes)	Order code	SINUMERIK 802D sl/840Di sl/840D sl											
						802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software					
												SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
Control structure and configuration																	
SINUMERIK 840D sl:																	
• NCU 710.2 with PLC 317-2DP				6FC5371-0AA10-0AA1		N	N	N	N	O	O	O			O	O	O
• NCU 720.2 with PLC 317-2DP				6FC5372-0AA00-0AA2		N	N	N	N	O	O	O			O	O	O
• NCU 730.2 with PLC 317-2DP				6FC5373-0AA00-0AA2		N	N	N	N	O	O	O			O	O	O
• NCU 710.3 PN with PLC 317-3PN/DP			SW 2.7 SP3 and higher.	6FC5371-0AA30-0AA1		N	N	N	N	O	O	O			O	O	O
• NCU 720.3 PN with PLC 317-3PN/DP			SW 2.7 SP3 and higher.	6FC5372-0AA30-0AA1		N	N	N	N	O	O	O			O	O	O
• NCU 730.3 PN with PLC 317-3PN/DP			SW 2.7 SP3 and higher.	6FC5373-0AA30-0AA1		N	N	N	N	O	O	O			O	O	O
• Seal for external cooling of NCUs				6FC5348-0AA07-0AA0		N	N	N	N	O	O						
• Numeric Control Extension NX10			For NCU 7x0.2	6SL3040-0NC00-0AA0		N	N	N	N	O	O						
• Numeric Control Extension NX15			For NCU 7x0.2	6SL3040-0NB00-0AA0		N	N	N	N	O	O						
• Numeric Control Extension NX10.3			For NCU 7x0.3 PN	6SL3040-1NC00-0AA0		N	N	N	N	O	O						
• Numeric Control Extension NX15.3			For NCU 7x0.3 PN	6SL3040-1NB00-0AA0		N	N	N	N	O	O						
• COM01.2 RS232C (V.24) module			For NCU 7x0.2	6FC5312-0FA01-0AA0		N	N	N	N	O	O	S	N	N	N	N	N
• COM01.3 RS232C (V.24) module			For NCU 7x0.3 PN	6FC5312-0FA01-1AA0		N	N	N	N	O	O	S	N	N	N	N	N
• Maximum configuration NX																	
NCU 710.2/NCU 710.3 PN						N	N	N	N	3	3						
NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN						N	N	N	N	5	5						
• Maximum configuration NCU+NX+CU3.. ¹⁾			¹⁾ In preparation.														
NCU 710.2/NCU 710.3 PN						N	N	N	N	9	9						
NCU 720.2/NCU 720.3 PN						N	N	N	N	13	13						
NCU 730.2/NCU 730.3 PN						N	N	N	N	15	15						
• Maximum configuration CU3.. ¹⁾			¹⁾ In preparation.														
NCU 710.2/NCU 710.3 PN			¹⁾ x = no. of NX+1			N	N	N	N	9 - x ¹⁾	9 - x ¹⁾						
NCU 720.2/NCU 720.3 PN			¹⁾ x = no. of NX+1			N	N	N	N	13 - x ¹⁾	13 - x ¹⁾						
NCU 730.2/NCU 730.3 PN			¹⁾ x = no. of NX+1			N	N	N	N	15 - x ¹⁾	15 - x ¹⁾						
Software for SINUMERIK NCU 710.2/NCU 720.2/NCU 730.2:																	
• CNC software 6-3 with HMI-Embedded, export version, on CF card, with license			See Basic components.	6FC5840-1YG...YA0		N	N	N	N	O	N	N		S			
• CNC software 6-3 with HMI-Embedded, on CF card, with license			See Basic components.	6FC5840-1XG...YA0		N	N	N	N	N	O	N		S			
• CNC software 31-5 with HMI-Embedded, export version, on CF card, with license			See Basic components.	6FC5840-3YG...YA0		N	N	N	N	O	N	N		S			
• CNC software 31-5 with HMI-Embedded, on CF card, with license			See Basic components.	6FC5840-3XG...YA0		N	N	N	N	N	O	N		S			
• CNC software 6-3/31-5 with HMI-Embedded, export version, on DVD-ROM, without license			See Basic components.	6FC5840-3YC...YA8		N	N	N	N	O	N	N		S			
• CNC software 6-3 with HMI-Embedded, export version, license				6FC5840-1YF00-0YB0		N	N	N	N	O	N	N		S			
• CNC software 31-5 with HMI-Embedded, export version, license				6FC5840-3YF00-0YB0		N	N	N	N	O	N	N		S			
• CNC software 6-3/31-5 with HMI-Embedded, on DVD-ROM, without license			See Basic components.	6FC5840-3XC...YA8		N	N	N	N	N	O	N		S			
• CNC software 6-3 with HMI-Embedded, license				6FC5840-1XF00-0YB0		N	N	N	N	N	O	N		S			
• CNC software 31-5 with HMI-Embedded, license				6FC5840-3XF00-0YB0		N	N	N	N	N	O	N		S			

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N = Not possible

Notes
(footnotes are applicable line by line)

Order-No.

Order code

Type
(for complete Order-No.,
see notes)

SINUMERIK 802D sl/840Di sl/840D sl

Blank field:

Function is not dependent on operating software

- CNC software 6-3/31-5 with HMI-Embedded, export version, software update service, without license
- CNC software 6-3/31-5 with HMI-Embedded, software update service, without license
- CNC software 6-3 and ShopMill HMI, export version, on CF card, with license
- CNC software 6-3 and ShopMill HMI, on CF card, with license
- CNC software 31-5 and ShopMill HMI, export version, on CF card, with license
- CNC software 31-5 and ShopMill HMI, on CF card, with license
- CNC software 6-3/31-5 and ShopMill HMI, export version, on DVD-ROM, without license
- CNC software 6-3 and ShopMill HMI, export version, license
- CNC software 31-5 and ShopMill HMI, export version, license
- CNC software 6-3/31-5 and ShopMill HMI, on DVD-ROM, without license
- CNC software 6-3 and ShopMill HMI, license
- CNC software 31-5 and ShopMill HMI, license
- CNC software 6-3/31-5 and ShopMill HMI, export version, software update service, without license
- CNC software 6-3/31-5 and ShopMill HMI, software update service, without license
- CNC software 6-3 and ShopTurn HMI, export version, on CF card, with license
- CNC software 6-3 and ShopTurn HMI, on CF card, with license
- CNC software 31-5 and ShopTurn HMI, export version, on CF card, with license
- CNC software 31-5 and ShopTurn HMI, on CF card, with license
- CNC software 6-3/31-5 and ShopTurn HMI, export version, on DVD-ROM, without license
- CNC software 6-3 and ShopTurn HMI, export version, license
- CNC software 31-5 and ShopTurn HMI, export version, license
- CNC software 6-3/31-5 and ShopTurn HMI, on DVD-ROM, without license
- CNC software 6-3 and ShopTurn HMI, license
- CNC software 31-5 and ShopTurn HMI, license
- CNC software 6-3/31-5 and ShopTurn HMI, export version software update service, without license
- CNC software 6-3/31-5 and ShopTurn HMI, software update service, without license

Software for SINUMERIK NCU 710.2/NCU 720.2/NCU 730.2/
NCU 710.3 PN/NCU 720.3 PN/ NCU 730.3 PN:

Notes (footnotes are applicable line by line)	Order-No.	Order code							Blank field: Function is not dependent on operating software				
	Type (for complete Order-No., see notes)		802D sl - T/M	802D sl - G/N	840 DIE sl	840 DI sl	840DE sl	840 D sl	SINUMERIK Operate	HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI
	6FC5840-3YP00-0YL8		N	N	N	N	O	N	N		S		
	6FC5840-3XP00-0YL8		N	N	N	N	N	O	N		S		
See Basic components.	6FC5841-1YG...YA0		N	N	N	N	O	N	N		S	S	
See Basic components.	6FC5841-1XG...YA0		N	N	N	N	N	O	N		S	S	
See Basic components.	6FC5841-3YG...YA0		N	N	N	N	O	N	N		S	S	
See Basic components.	6FC5841-3XG...YA0		N	N	N	N	N	O	N		S	S	
See Basic components.	6FC5841-3YC...YA8		N	N	N	N	O	N	N		S	S	
	6FC5841-1YF00-0YB0		N	N	N	N	O	N	N		S	S	
	6FC5841-3YF00-0YB0		N	N	N	N	O	N	N		S	S	
See Basic components.	6FC5841-3XC...YA8		N	N	N	N	N	O	N		S	S	
	6FC5841-1XF00-0YB0		N	N	N	N	N	O	N		S	S	
	6FC5841-3XF00-0YB0		N	N	N	N	N	O	N		S	S	
	6FC5841-3YP00-0YL8		N	N	N	N	O	N	N		S	S	
	6FC5841-3XP00-0YL8		N	N	N	N	N	O	N		S	S	
See Basic components.	6FC5842-1YG...YA0		N	N	N	N	O	N	N		S		S
See Basic components.	6FC5842-1XG...YA0		N	N	N	N	N	O	N		S		S
See Basic components.	6FC5842-3YG...YA0		N	N	N	N	O	N	N		S		S
See Basic components.	6FC5842-3XG...YA0		N	N	N	N	N	O	N		S		S
See Basic components.	6FC5842-3YC...YA8		N	N	N	N	O	N	N		S		S
	6FC5842-1YF00-0YB0		N	N	N	N	O	N	N		S		S
	6FC5842-3YF00-0YB0		N	N	N	N	O	N	N		S		S
See Basic components.	6FC5842-3XC...YA8		N	N	N	N	N	O	N		S		S
	6FC5842-1XF00-0YB0		N	N	N	N	N	O	N		S		S
	6FC5842-3XF00-0YB0		N	N	N	N	N	O	N		S		S
	6FC5842-3YP00-0YL8		N	N	N	N	O	N	N		S		S
	6FC5842-3XP00-0YL8		N	N	N	N	N	O	N		S		S

			SINUMERIK 802D sl/840Di sl/840D sl											
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										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• CNC software 6-3 with SINUMERIK Operate, export version, on CF card, with license • CNC software 31-5 with SINUMERIK Operate, export version, on CF card, with license • CNC software 6-3 with SINUMERIK Operate, on CF card, with license • CNC software 31-5 with SINUMERIK Operate, on CF card, with license • CNC software 6-3/31-5 with SINUMERIK Operate, export version, on DVD-ROM, without license • CNC software 6-3 with SINUMERIK Operate, export version, license • CNC software 31-5 with SINUMERIK Operate, export version, license • CNC software 6-3/31-5 with SINUMERIK Operate, on DVD-ROM, without license • CNC software 6-3 with SINUMERIK Operate, license • CNC software 31-5 with SINUMERIK Operate, license • CNC software 6-3/31-5 with SINUMERIK Operate, export version, software update service, without license • CNC software 6-3/31-5 with SINUMERIK Operate, software update service, without license	See Basic components.	6FC5850-1YG...-YA0		N	N	N	N	O	N	S		N	N	N
	See Basic components.	6FC5850-3YG...-YA0		N	N	N	N	O	N	S		N	N	N
	See Basic components.	6FC5850-1XG...-YA0		N	N	N	N	N	O	S		N	N	N
	See Basic components.	6FC5850-3XG...-YA0		N	N	N	N	N	O	S		N	N	N
	See Basic components.	6FC5850-3YC...-YA8		N	N	N	N	O	N	S		N	N	N
		6FC5850-1YF00-0YB0		N	N	N	N	O	N	S		N	N	N
		6FC5850-3YF00-0YB0		N	N	N	N	O	N	S		N	N	N
	See Basic components.	6FC5850-3XC...-YA8		N	N	N	N	N	O	S		N	N	N
		6FC5850-1XF00-0YB0		N	N	N	N	N	O	S		N	N	N
		6FC5850-3XF00-0YB0		N	N	N	N	N	O	S		N	N	N
		6FC5850-3YP00-0YL8		N	N	N	N	O	N	S		N	N	N
		6FC5850-3XP00-0YL8		N	N	N	N	N	O	S		N	N	N
	Data carrier for CNC software:													
	• CompactFlash card 1 GB		6FC5313-5AG00-0AA1		O	O	N	N	O	O				
• CompactFlash card 8 GB		6FC5313-6AG00-0AA0		N	N	N	N	O	O					
SINUMERIK 840Di sl/840DiE sl hardware with CNC software and licenses installed:														
• Current CNC software, export version, on hard disk of the SINUMERIK 840DiE sl (PCU 50.3B-C 1,5 GHz/512 MB + MC12 board, Windows XP ProEmbSys)	6 axes: L11 20 axes: L12	6FC5220-0YA31-2AB0-Z L1■ + Q00 + R00		N	N	O	N	N	N	N	S		S	S
• Current CNC software, on hard disk of the SINUMERIK 840Di sl (PCU 50.3B-C 1,5 GHz/512 MB + MC12 board, Windows XP ProEmbSys)	6 axes: L11 20 axes: L12	6FC5220-0XA31-2AB0-Z L1■ + Q00 + R00		N	N	N	O	N	N	N	S		S	S
• Current CNC software, export version, on hard disk of the SINUMERIK 840DiE sl (PCU 50.3B-P 2,0 GHz/1 GB + MC12 board, Windows XP ProEmbSys)	6 axes: L11 20 axes: L12	6FC5220-0YA33-2AB0-Z L1■ + Q00 + R00		N	N	O	N	N	N	N	S		S	S
• Current CNC software, on hard disk of the SINUMERIK 840Di sl (PCU 50.3B-P 2,0 GHz/1 GB + MC12 board, Windows XP ProEmbSys)	6 axes: L11 20 axes: L12	6FC5220-0XA33-2AB0-Z L1■ + Q00 + R00		N	N	N	O	N	N	N	S		S	S
• CNC software 6-3/20-5, export version, software update service, without license		6FC5820-3YP00-0YL8		N	N	O	N	N	N	N	O			
• CNC software 6-3/20-5, software update service, without license		6FC5820-3XP00-0YL8		N	N	N	O	N	N	N	O			
SINUMERIK 840Di sl hardware with Windows operating system:														
• 840Di sl (PCU 50.3B-C 1,5 GHz/512 MB + MC12 board, Windows XP ProEmbSys)		6FC5220-0AA31-2AB0		N	N	O	O	N	N	N	O	N	V	V

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		Type (for complete Order-No., see notes)	SINUMERIK Operate							HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI		
		• 840Di sl (PCU 50.3B-P 2,0 GHz/1 GB + MCI2 board, Windows XP ProEmbSys)		6FC5220-0AA33-2AB0		N	N	O	O	N	N	N	O	N	V
MCI board extension slot version with cable distributor		6FC5222-0AA00-0AA1 6FX2006-1BA02		N	N	O	O	N	N						
Software for SINUMERIK 840Di sl:															
• CNC software 6-3/20-5 and ShopMill HMI, ShopTurn HMI and HMI-Advanced, export version, on DVD-ROM, without license	See Basic components.	6FC5820-3YC...-YA8		N	N	O	N	N	N	N	S		S	S	
• CNC software 6-3, export version, license		6FC5820-1YP00-0YB0		N	N	O	N	N	N	N					
• CNC software 20-5, export version, license		6FC5820-3YP00-0YB0		N	N	O	N	N	N	N					
• CNC software 6-3/20-5 and ShopMill HMI, ShopTurn HMI and HMI-Advanced, on DVD-ROM, without license	See Basic components.	6FC5820-3XC...-YA8		N	N	N	O	N	N	N	S		S	S	
• CNC software 6-3, license		6FC5820-1XP00-0YB0		N	N	N	O	N	N	N					
• CNC software 20-5, license		6FC5820-3XP00-0YB0		N	N	N	O	N	N	N					
SINUMERIK 802D sl:															
• Version T/M value, export version		6FC5370-0AA00-1AA1		S	N	N	N	N	N						
• Version T/M plus, export version		6FC5370-0AA00-2AA1		S	N	N	N	N	N						
• Version T/M pro, export version		6FC5370-0AA00-3AA1		S	N	N	N	N	N						
• Version G/N plus, export version		6FC5370-0AA00-2BA1		N	S	N	N	N	N						
• Version G/N pro, export version		6FC5370-0AA00-3BA1		N	S	N	N	N	N						
Channels/mode group (MG):				S	S	S	S	S	S						
				1	1	1	1	1	1						
• Maximum configuration				1	1					10	10	10	1	1	
CNC software 6-3				N	N	2	2	2	2						
CNC software 20-5/31-5				N	N	10	10	10	10						
NCU 710.2/NCU 710.3 PN				N	N	N	N	4	4						
NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN				N	N	N	N	10	10						
• Mode group (MG), each additional		6FC5800-0AC00-0YB0	C01 ... C09	N	N	O	O	O	O	O	O	O	N	N	
Example: 4 additional machining channels: 6FC5800-0AC10-0YB0-Z C14		6FC5800-0AC10-0YB0	C11 ... C19	N	N	O	O	O	O	O	O	O	N	N	
CNC user memory (buffered) for programs and OEM cycles in MB	¹⁾ With value version: 512 KB. With plus version: 1 MB.			S 3 ¹⁾	S 3 ¹⁾	S 5	S 5	S 3	S 3						
CNC user memory for programs, OEM cycles and data expansion by 2 MB in each case	Example: Expansion by 6 Mbyte: D03	6FC5800-0AD00-0YB0	D01 ... D06	N	N	N	N	O	O						
CNC user memory, maximum configuration	¹⁾ With value version: 512 KB. With plus version: 1 MB. ²⁾ For NCU 710.2/ NCU 710.3 PN max. 9 MB.			3 ¹⁾	3 ¹⁾	5	5	15 ²⁾	15 ²⁾						
HMI user memory, additional on CF card of NCU	¹⁾ On external CF card on the front. ²⁾ On CF card of NCU, not with HMI on PCU 50.	6FC5800-0AP12-0YB0	P12	S 1)	S 1)	N	N	F 2)	F 2)	O 2)	N	O	O 2)	O 2)	

		SINUMERIK 802D sl/840Di sl/840D sl								Blank field: Function is not dependent on operating software				
		Order-No.	Order code	802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Type (for complete Order-No., see notes)											
Axes/spindles or positioning axes/auxiliary spindle:		¹⁾ With value version: 3/1.		4/1 3/2 ¹⁾	4/1 3/2									
CNC software 6-3				N	N	S 3	S 3	S 3	S 3					
CNC software 20-5/31-5				N	N	S 5	S 5	S 5	S 5					
• Maximum configuration of axes		¹⁾ With value version: 3/1. ²⁾ Display: 3 geometry axes + 2 additional axes + 1 spindle. ³⁾ Display: 3 geometry axes + 2 additional axes + 3 spindle.		4/1 3/2 ¹⁾	4/1 3/2	20	20			31	31	31	12 ²⁾	12 ³⁾
NCU 710.2/NCU 710.3 PN				N	N	N	N	6	6					
NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN				N	N	N	N	31	31					
• Maximum configuration of spindles		¹⁾ With value version: 1.		2 ¹⁾	2	20	20			31	31	31	1	3+2C
NCU 710.2/NCU 710.3 PN				N	N	N	N	6	6					
NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN				N	N	N	N	31	31					
• Maximum configuration axes/spindles		¹⁾ With value version: 3/1.		4/1 3/2 ¹⁾	4/1 3/2	20	20			31	31	31	12	12
NCU 710.2/NCU 710.3 PN				N	N	N	N	6	6					
NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN				N	N	N	N	31	31					
• Configuration per channel axes incl. spindles		¹⁾ With value version: 3/1.		4/1 3/2 ¹⁾	4/1 3/2	12	12			20 20	20 20	20 20	12 1	12 3
NCU 710.2/NCU 710.3 PN				N	N	N	N	6	6					
NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN				N	N	N	N	20	20					
Axis/spindle, each additional		Example: 12 additional axes/spindles: A12	6FC5800-0AA00-0YB0	A01 ... A26	N	N	O	O	O					
Positioning axis/auxiliary spindle, each additional			6FC5800-0AB00-0YB0	B01 ... B26	N	N	O	O	O					
Multi-axis package (expansion to 31 axes/spindles and 10 channels)		SW 2.7 and higher.	6FC5800-0AM10-0YB0	M10	N	N	N	N	O					
PLC-controlled axis		¹⁾ With plus and pro versions.		1 ¹⁾	1 ¹⁾	S	S	S	S					
PLC positioning axis via PROFIBUS DP				N	N	S	S	S	S					
• Maximum configuration axes/spindles, numerically and PLC-controlled										50	50	N	N	N
NCU 710.2/NCU 710.3 PN				N	N	N	N	15	15					
NCU 720.2/NCU 720.3 PN				N	N	N	N	40	40					
NCU 730.2/NCU 730.3 PN				N	N	N	N	50	50					
• Maximum configuration axes/spindles, PLC-controlled		¹⁾ No CNC options required.								50	50	N	N	N
NCU 710.2/NCU 710.3 PN		¹⁾ Max. 15 minus numerically controlled axes/spindles.		N	N	N	N	9...15	9...15					
NCU 720.2/NCU 720.3 PN		¹⁾ Max. 40 minus numerically controlled axes/spindles.		N	N	N	N	9...40	9...40					
NCU 730.2/NCU 730.3 PN		¹⁾ Max. 50 minus numerically controlled axes/spindles.		N	N	N	N	19...50	19...50					

Drives

				SINUMERIK 802D sl/840Di sl/840D sl																	
S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Order-No.	Order code	802D sl - T/M		802D sl - G/N		840 DiE sl		840 Di sl		840DE sl		840 D sl		Blank field: Function is not dependent on operating software				
			Type (for complete Order-No., see notes)	SINUMERIK Operate													HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI	
SINAMICS S120 Combi			6SL3111-3VE21-6FA0 6SL3111-3VE21-6EA0 6SL3111-3VE22-0HA0 6SL3111-4VE21-6FA0 6SL3111-4VE21-6EA0 6SL3111-4VE22-0HA0		N	N	N	N	N	N											
SINAMICS S120 booksize compact format, Motor Modules as an extension for SINAMICS S120 Combi			6SL34.....		N	N	N	N	N	N											
SINAMICS S120 booksize compact format					N	N	N	N	N	N											
SINAMICS S120 booksize format, Motor Modules via DRIVE-CLiQ		See SINAMICS S120 drive system.			S	S	N	N	S	S											
SINAMICS S120 CU320-2 Control Unit via PROFIBUS DP (without CompactFlash card)		With NCU 7x0.3 PN SW version 2.7 SP3 and higher.	6SL3040-1MA00-0A..		N	N	N	N	O	O											
SINAMICS S120 CU320-2 Control Unit with CBE20 via PROFINET (without CompactFlash card)		With NCU 7x0.3 PN SW version 2.7 SP3 and higher. For positioning tasks via PLC.	6SL3040-1MA01-0A..		N	N	N	N	O	O											
CompactFlash card with current SINAMICS FW version																					
• License for basic performance			6SL3054-0EE00-1BA0																		
• License with Performance extension firmware option			6SL3054-0EE01-1BA0																		
SINAMICS S120 CU320 Control Unit via PROFIBUS DP (without CompactFlash card)		1) With NCU 7x0.2	6SL3040-0MA00-0A..		N	N	S	S	O 1)	O 1)											
SINAMICS S120 CU320 Control Unit with CBE20 via PROFINET (without CompactFlash card)		With NCU 7x0.2 SW version 2.7 SP3 and higher. For positioning tasks via PLC.	6SL3040-0MA00-0A..		N	N	N	N	O	O											
CompactFlash card with current SINAMICS FW version																					
• License for basic performance			6SL3054-0AA00-1AA0																		
• License with Performance extension firmware option			6SL3054-0AA01-1AA0																		
SINAMICS S120 CU310-2 DP closed-loop control		See SINAMICS S120 drive system. With NCU 7x0.3 PN. For positioning tasks via PLC with blocksize Power Module.	6SL3040-1LA00-0AA.		N	N	N	N	O	O											
SINAMICS S120 CU310-2 PN closed-loop control		See SINAMICS S120 drive system. With NCU 7x0.3 PN. For positioning tasks via PLC with blocksize Power Module.	6SL3040-1LA01-0AA.		N	N	N	N	O	O											
SINAMICS S120 CU310 DP closed-loop control		See SINAMICS S120 drive system. With NCU 7x0.2. For positioning tasks via PLC with blocksize Power Module.	6SL3040-0LA00-0AA.		N	N	N	N	O	O											
SINAMICS S120 CU310 PN closed-loop control		See SINAMICS S120 drive system. With NCU 7x0.2. For positioning tasks via PLC with blocksize Power Module.	6SL3040-0LA01-0AA.		N	N	N	N	O	O											
SINAMICS S120 Control Unit Adapter CUA31		See SINAMICS S120 drive system.	6SL3040-0PA00-0A..		O	O	N	N	O	O											
SINAMICS S120 Sensor Modules Cabinet					O	O	O	O	O	O											

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				802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
Notes (footnotes are applicable line by line)		Type (for complete Order-No., see notes)													
• SINAMICS S120 SMC10		See SINAMICS S120 drive system. ¹⁾ No SINUMERIK Safety Integrated.	6SL3055-0AA00-5AA3					¹⁾	¹⁾						
• SINAMICS S120 SMC20		See SINAMICS S120 drive system.	6SL3055-0AA00-5BA3												
• SINAMICS S120 SMC30		See SINAMICS S120 drive system. ¹⁾ No SINUMERIK Safety Integrated.	6SL3055-0AA00-5CA3					¹⁾	¹⁾						
SINAMICS S120 Sensor Modules Extern				N	N	O	O	O	O						
• SINAMICS S120 SME20		See SINAMICS S120 drive system.	6SL3055-0AA00-5EA3												
• SINAMICS S120 SME25		See SINAMICS S120 drive system.	6SL3055-0AA00-5HA3												
• SINAMICS S120 SME120		See SINAMICS S120 drive system.	6SL3055-0AA00-5JA3												
• SINAMICS S120 SME125		See SINAMICS S120 drive system.	6SL3055-0AA00-5KA3												
SINAMICS S120 TB/TM Terminal Module															
• SINAMICS S120 TB30			6SL3055-0AA00-2T..	N	N	N	N	N	N						
• SINAMICS S120 TM31		See SINAMICS S120 drive system.	6SL3055-0AA00-3A..	N	N	N	N	N	N						
• SINAMICS S120 TM41		¹⁾ SW version 1.5 HF5, SW version 2.5 HF2 and higher.	6SL3055-0AA00-3P..	N	N	N	N	O ¹⁾	O ¹⁾						
• SINAMICS S120 TM15		See SINAMICS S120 drive system.	6SL3055-0AA00-3FA.	N	N	O	O	O	O						
• SINAMICS S120 TM17		¹⁾ SW version 2.6 SP1 HF2 and higher plus option N51.	6SL3055-0AA00-3HA.	N	N	N	N	N	O ¹⁾						
• SINAMICS S120 TM120			6SL3055-0AA00-3KA0	N	N	N	N	N	N						
SINAMICS S120 expansion modules															
• SINAMICS S120 VSM10		See SINAMICS S120 drive system.	6SL3053-0AA00-3A..	N	N	N	N	N	N						
• SINAMICS S120 DMC20		See SINAMICS S120 drive system.	6SL3055-0AA00-6AA.	O	O	O	O	O	O						
• SINAMICS S120 DME20		See SINAMICS S120 drive system.	6SL3055-0AA00-6AB.	O	O	O	O	O	O						
SINAMICS S120 booksize format Motor Modules, internal air cooling		See SINAMICS S120 drive system.	6SL3120-1TE13-0A.. 6SL3120-1TE15-0A.. 6SL3120-1TE21-0A.. 6SL3120-1TE21-8A.. 6SL3120-1TE23-0A.. 6SL3120-1TE24-5A.. 6SL3120-1TE26-0A.. 6SL3120-1TE28-5A.. 6SL3120-1TE31-3A.. 6SL3120-1TE32-0A.. 6SL3120-2TE13-0A.. 6SL3120-2TE15-0A.. 6SL3120-2TE21-0A.. 6SL3120-2TE21-8A..			O	O	O	O	O					

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl													
			Type (for complete Order-No., see notes)	802D sl - T/M	802D sl - G/N	840 DIE sl		840 DI sl		840DE sl		840 D sl		Blank field: Function is not dependent on operating software				
						SINUMERIK Operate	HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI								
SINAMICS S120 booksize format Motor Modules, external air cooling	See SINAMICS S120 drive system.	6SL3121-1TE13-0A..																
		6SL3121-1TE15-0A..																
		6SL3121-1TE21-0A..																
		6SL3121-1TE21-8A..																
		6SL3121-1TE23-0A..																
		6SL3121-1TE24-5A..																
		6SL3121-1TE26-0A..																
		6SL3121-1TE28-5A..			O	O	O	O	O	O								
		6SL3121-1TE31-3A..																
		6SL3121-1TE32-0A..																
		6SL3121-2TE13-0A..																
		6SL3121-2TE15-0A..																
		6SL3121-2TE21-0A..																
		6SL3121-2TE21-8A..																
SINAMICS S120 booksize format Motor Modules, cold plate cooling	See SINAMICS S120 drive system.	6SL3126-1TE13-0A..																
		6SL3126-1TE15-0A..																
		6SL3126-1TE21-0A..																
		6SL3126-1TE21-8A..																
		6SL3126-1TE23-0A..																
		6SL3126-1TE24-5A..																
		6SL3126-1TE26-0A..			N	N	O	O	O	O								
		6SL3126-1TE28-5A..																
		6SL3126-1TE31-3A..																
		6SL3126-1TE32-0A..																
		6SL3126-2TE13-0A..																
		6SL3126-2TE15-0A..																
		6SL3126-2TE21-0A..																
		6SL3126-2TE21-8A..																
SINAMICS S120 booksize format Active Line Modules, internal air cooling	See SINAMICS S120 drive system.	6SL3130-7TE21-6A..																
		6SL3130-7TE23-6A..																
		6SL3130-7TE25-5A..			O	O	O	O	O	O								
		6SL3130-7TE28-0A..																
		6SL3130-7TE31-2A..																
SINAMICS S120 booksize format Active Line Modules, external air cooling	See SINAMICS S120 drive system.	6SL3131-7TE21-6A..																
		6SL3131-7TE23-6A..																
		6SL3131-7TE25-5A..			O	O	O	O	O	O								
		6SL3131-7TE28-0A..																
		6SL3131-7TE31-2A..																
SINAMICS S120 booksize format Active Line Modules, cold plate cooling	See SINAMICS S120 drive system.	6SL3136-7TE21-6A..																
		6SL3136-7TE23-6A..																
		6SL3136-7TE25-5A..			N	N	O	O	O	O								
		6SL3136-7TE28-0A..																
		6SL3136-7TE31-2A..																

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					802D sl - T/M	802D sl - G/N	840 DIE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
SINAMICS S120 booksize format Active Interface Modules	See SINAMICS S120 drive system.		6SL3100-0BE21-6A.. 6SL3100-0BE23-6A.. 6SL3100-0BE25-5A.. 6SL3100-0BE28-0A.. 6SL3100-0BE31-2A..		N	N	O	O	O	O					
SINAMICS S120 booksize format Smart Line Modules, internal air cooling	See SINAMICS S120 drive system.		6SL3130-6AE15-0A.. 6SL3130-6AE21-0A.. 6SL3130-6TE21-6A.. 6SL3130-6TE23-6A..		O	O	O	O	O	O					
SINAMICS S120 booksize format Smart Line Modules, external air cooling	See SINAMICS S120 drive system.		6SL3131-6AE15-0A.. 6SL3131-6AE21-0A.. 6SL3131-6TE21-6A.. 6SL3131-6TE23-6A..		O	O	O	O	O	O					
SINAMICS S120 booksize format Smart Line Modules, cold plate cooling	See SINAMICS S120 drive system.		6SL3136-6AE15-0A.. 6SL3136-6AE21-0A..		N	N	O	O	O	O					
SINAMICS S120 booksize format Basic Line Modules, internal air cooling	See SINAMICS S120 drive system.		6SL3130-1TE22-0A.. 6SL3130-1TE24-0A.. 6SL3130-1TE31-0A..		N	N	O	O	O	O					
SINAMICS S120 booksize format Basic Line Modules, cold plate cooling	See SINAMICS S120 drive system.		6SL3136-1TE22-0A.. 6SL3136-1TE24-0A.. 6SL3136-1TE31-0A..		N	N	O	O	O	O					
SINAMICS S120 chassis format Motor Modules, internal air cooling (rated pulse frequency 2 kHz)	See SINAMICS S120 drive system. ¹⁾ SINUMERIK Safety Integrated SW version 2.6 and higher.		6SL3320-1TE32-1AA.. 6SL3320-1TE32-6AA.. 6SL3320-1TE33-1AA.. 6SL3320-1TE33-8AA.. 6SL3320-1TE35-0AA..		N	N	O	O	O ₁₎	O ₁₎					
SINAMICS S120 chassis format Motor Modules, internal air cooling (rated pulse frequency 1,25 kHz)			6SL3320-1TE36-1AA.. 6SL3320-1TE37-5AA.. 6SL3320-1TE38-4AA.. 6SL3320-1TE41-0AA.. 6SL3320-1TE41-2AA.. 6SL3320-1TE41-4AA..		N	N	N	N	N	N					
SINAMICS S120 chassis format Active Line Modules, internal air cooling (up to 300 kW)	See SINAMICS S120 drive system. ¹⁾ SW version 2.6 and higher, max. 2 ALM.		6SL3330-7TE32-1AA.. 6SL3330-7TE32-6AA.. 6SL3330-7TE33-8AA.. 6SL3330-7TE35-0AA..		N	N	O	O	O ₁₎	O ₁₎					
SINAMICS S120 chassis format Active Line Modules, internal air cooling (up to 900 kW)			6SL3330-7TE36-1AA.. 6SL3330-7TE38-4AA.. 6SL3330-7TE41-0AA.. 6SL3330-7TE41-4AA..		N	N	N	N	N	N					
SINAMICS S120 chassis format Active Interface Modules	See SINAMICS S120 drive system.		6SL3300-7TE32-6AA.. 6SL3300-7TE33-8AA.. 6SL3300-7TE35-0AA..		N	N	O	O	O	O					

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
SINAMICS S120 blocksize format Power Modules 1 AC 230 V, internal air cooling	No SINUMERIK Safety Integrated.		6SL3210-1SB10-9UA0												
			6SL3210-1SB12-3UA0												
			6SL3210-1SB13-9UA0												
			6SL3210-1SB10-9AA0		N	N	O	O	O	O					
			6SL3210-1SB12-3AA0												
			6SL3210-1SB13-9AA0												
SINAMICS S120 blocksize format Power Modules 400 V 3 AC, internal air cooling	No SINUMERIK Safety Integrated.		6SL3210-1SE11-3UA0												
			6SL3210-1SE11-7UA0												
			6SL3210-1SE12-2UA0												
			6SL3210-1SE13-1UA0												
			6SL3210-1SE14-1UA0												
			6SL3210-1SE16-0UA0												
			6SL3210-1SE17-7UA0												
			6SL3210-1SE21-0UA0												
			6SL3210-1SE21-8UA0												
			6SL3210-1SE22-5UA0												
			6SL3210-1SE23-2UA0												
			6SL3210-1SE23-8UA0												
			6SL3210-1SE24-5UA0												
			6SL3210-1SE26-0UA0												
			6SL3210-1SE27-5UA0												
			6SL3210-1SE31-0UA0												
			6SL3210-1SE31-1UA0												
			6SL3210-1SE31-5UA0												
			6SL3210-1SE31-8UA0												
			6SL3210-1SE11-3AA0			N	N	O	O	O	O				
			6SL3210-1SE11-7AA0												
			6SL3210-1SE12-2AA0												
			6SL3210-1SE13-1AA0												
			6SL3210-1SE14-1AA0												
			6SL3210-1SE16-0AA0												
			6SL3210-1SE17-7AA0												
			6SL3210-1SE21-0AA0												
			6SL3210-1SE21-8AA0												
			6SL3210-1SE22-5AA0												
			6SL3210-1SE23-2AA0												
			6SL3210-1SE23-8AA0												
			6SL3210-1SE24-5AA0												
			6SL3210-1SE26-0AA0												
			6SL3210-1SE27-5AA0												
			6SL3210-1SE31-0AA0												
			6SL3210-1SE31-1AA0												
			6SL3210-1SE31-5AA0												
			6SL3210-1SE31-8AA0												

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
SINAMICS S120 chassis format Power Modules, 400 V 3 AC, internal air cooling			6SL3310-1TE32-1AA0 6SL3310-1TE32-6AA0 6SL3310-1TE33-1AA0 6SL3310-1TE33-8AA0 6SL3310-1TE35-0AA0			N	N	N	N	N	N					
SINUMERIK Analog Drive Interface for 4 Axes, ADI 4		No PROFIBUS certification.	6FC5211-0BA01-0AA3			O	O	O	O	O	O					
Hydraulic axis (distributed) for connection as interpolating CNC axis		Coupled via PROFIBUS DP V2 with PROFIdrive V4.1 isochronous for electrical drives, e. g. IAC-R. No SINUMERIK Safety Integrated.	External drive.			N	N	O	O	O	O					
SIMODRIVE 611 universal HRS		No mixed operation with SINAMICS.	More information see catalog NC 60.			N	N	S	S	N	N					
SIMODRIVE 611 universal E HRS via PROFIBUS		No mixed operation with SINAMICS.	More information see catalog NC 60.			N	N	S	S	N	N					
SIMODRIVE POSMO A/SI/CD/CA		No mixed operation with SINAMICS.	More information see catalog NC 60.			N	N	S	S	N	N					
Synchronous motors																
• SIMOTICS M-PH8						N	N	O	O	O	O					
• SIMOTICS S-1FT7						N	N	O	O	O	O					
• SIMOTICS S-1FK7						O	O	O	O	O	O					
• SIMOTICS S-1FK7 with DQI						N	N	N	N	O	O					
• SIMOTICS L-1FN3						N	N	O	O	O	O					
• SIMOTICS L-1FN6						N	N	O	O	O	O					
• SIMOTICS T-1FW6						N	N	O	O	O	O					
• SIMOTICS M-1FE1						N	N	O	O	O	O					
• 2SP1 motor spindles						N	N	O	O	O	O					
Asynchronous motors																
• SIMOTICS M-1PH8						N	N	N	N	O	O					
• SIMOTICS M-1PH7						O	O	O	O	O	O					
• SIMOTICS M-1PH4						O	O	O	O	O	O					
• SIMOTICS M-1PH2						O	O	O	O	O	O					
Connectable measuring systems																
• Absolute/incremental encoder installed in 1FT7/1FK7/1PH7/1PH8		Integrated in motor via SINAMICS S120 Sensor Modules.				S	S	S	S	S	S					
• Resolver installed in 1FK7/1PH7		Integrated in motor via SINAMICS S120 Sensor Modules.				S	S	S	S	S	S					
• Incremental rotary measuring systems with RS 422 (TTL)		Via SINAMICS S120 Sensor Modules SMC30. ¹⁾ For analog spindle, setpoint via MCPA. ²⁾ For analog axes via ADI 4.				S 1)2)	S 1)2)	S 2)	S 2)	S	S					
• Linear scale LMS with sin/cos 1 Vpp		Via SINAMICS S120 Sensor Modules SMC20/SME20.				S	S	S	S	S	S					
• Rotary measuring systems with sin/cos 1 Vpp		Via SINAMICS S120 Sensor Modules SMC20/SME20.				S	S	S	S	S	S					

			SINUMERIK 802D sl/840Di sl/840D sl																	
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																SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
		Type (for complete Order-No., see notes)																		
• Linear scale LMS with distance-coded reference marks	Via SINAMICS S120 Sensor Modules SMC20/SME20.			S	S	S	S	S	S											
• Rotary measuring systems with distance-coded reference marks	Via SINAMICS S120 Sensor Modules SMC20/SME20.			S	S	S	S	S	S											
• Linear scale LMS with EnDat 2.1	Via SINAMICS S120 Sensor Modules SMC20/SME25.			S	S	S	S	S	S											
• Rotary measuring systems with EnDat 2.1	Via SINAMICS S120 Sensor Modules SMC20/SME25.			S	S	S	S	S	S											
• Absolute encoder with SSI interface	For analog axes via ADI 4. Via SINAMICS S120			N	N	S	S	S	S											
• Resolver as external machine encoder	Sensor Modules SMC10.			N	N	S	S	S	S											
• Absolut encoder with DRIVE-CLiQ interface	Via SINAMICS S120 NCU SW version 2.6 and higher.			N	N	N	N	S	S											
Drive functions																				
Closed-loop control				S	S	S	S	S	S											
• Servo control				N	N	N	N	N	N											
• Vector control				N	N	N	N	N	N											
• Vector V/f control				N	N	N	N	N	N											
• Combination of servo/vector V/f on a Control Unit				N	N	N	N	N	N											
• Setting the pulse frequency grid in fine steps (4 kHz, 8 kHz)				N	N	N	N	N	N											
• Sin-wave filter				N	N	N	N	N	N											
• Units changeover US/SI				N	N	N	N	N	N											
• Direction reversal without changing the setpoint				N	N	N	N	N	N											
• Technology controller				N	N	N	N	N	N											
• kT estimator				N	N	N	N	N	N											
• kT (iq) characteristic				N	N	S	S	S	S											
• Rotor/pole position identification				N	N	S	S	S	S											
• saturation-based/motion-based				N	N	S	S	S	S											
• Edge modulation				N	N	N	N	N	N											
• Motor data identification stationary/rotating				N	N	S	S	S	S											
• Flux reduction for asynchronous motors (induction motors)				N	N	N	N	S	S											
Modular machine concept (sub-topologies)																				
• Parking axis/encoder				N	N	S	S	S	S											
Brakes																				
• Braking signal, basic/extended				S	S	S	S	S	S											
• Armature short-circuit brake, internal				N	N	N	N	N	N											
• Armature short-circuit brake, external				N	N	N	N	S	S											
• DC brake				N	N	N	N	N	N											
Voltage protection for SIMOTICS M-1FE1/-1PH8/2SP1																				
• Externally via VPM module	See Synchronous motors.			N	N	O	O	O	O											
Full hub functionality DMC20 – Sensor Module Integrated with automatic commissioning behind hub module				N	N	S	S	S	S											
Motor/winding switchover				N	N	N	N	N	N											
Suspended axis/electronic counterweight				S	S	S	S	S	S											

	Notes (footnotes are applicable line by line)	Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl						Blank field: Function is not dependent on operating software				
				802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible														
Dynamic energy management (DC link voltage management)				S	S	S	S	S	S					
Runtime meter				N	N	S	S	S	S					
I^2t monitoring for motors				N	N	N	N	S	S					
Changing reference parameters/scaling				S	S	S	S	S	S					
Automatic restart mechanism (servo/infeed)				N	N	N	N	N	N					
Technology function: friction characteristic curve				N	N	N	N	N	N					
Position tracking				N	N	N	N	S	S					
Drive Control Chart DCC				N	N	N	N	N	N					
Drive Based Open Architecture				N	N	N	N	N	N					
Basic positioner				N	N	N	N	N	N					
2 command data sets				N	N	N	N	N	N					
Parallel connection of Motor Modules				N	N	N	N	N	N					
200 V 3 AC possible for booksize/blocksize modules				N	N	N	N	S	S					
Maximum configuration (valid for standard PROFIBUS DP cycle)														
• Axes/spindles for current/speed controller cycle of 125 µs				4	4	N	N	31	31					
• Axis/spindles for current/speed controller cycle of 62,5 µs				N	N	N	N	11	11					
• Axes/spindles per NCU/NX for current/speed controller cycle of 125 µs				N	N	N	N	6	6					
• Axes/spindles for NCU/NX for current/speed controller 62,5 µs				N	N	N	N	2	2					
• Motor measuring systems and direct measuring systems per NCU/NX for current/speed controller cycle of 125 µs				N	N	N	N	9	9					
• SINAMICS S120 chassis format Motor Modules per NCU/NX				N	N	N	N	2	2					
Current/speed controller cycle														
• Minimum for SINAMICS S120 booksize format				N	N			62,5 µs	62,5 µs					
• Maximum for SINAMICS S120 chassis format				N	N			125 µs	125 µs					
• Maximum				N	N			250 µs	250 µs					
PROFIBUS DP cycle (corresponds to FIPO cycle)														
• Minimum				1,5 ms	1,5 ms			0,5 ms	0,5 ms					
Maximum number														
• Drive data sets								32	32					
• Motor data sets								8	8					
• Encoder data sets								8	8					
Axis functions														
Traversing range ± 9 decades				S	S	S	S	S	S					
Rotary axis, continuously turning	¹⁾ With plus and pro versions.			S ¹⁾	S	S	S	S	S					
Velocity, max. 300 m/s (984 ft/s)				S	S	S	S	S	S					
Acceleration with jerk limitation				S	S	S	S	S	S					
Programmable acceleration				S	S	S	S	S	S					
Follow-up mode				S	S	S	S	S	S					
Measuring system 1 and 2, selectable				N	N	S	S	S	S					
Feedrate interpolation				N	N	S	S	S	S					

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl						Blank field: Function is not dependent on operating software				
					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Separate path feed for corners and chamfers					S	S	S	S	S	S					
Travel to fixed stop	¹⁾ With plus and pro versions.				S ¹⁾	S	S	S	S	S					
Travel to fixed stop with Force Control			6FC5800-0AM01-0YB0	M01	N	N	O	O	O	O					
Analog axis	With ADI 4.				N	N	S	S	S	S					
Setpoint exchange			6FC5800-0AM05-0YB0	M05	N	N	N	N	O	O					
Tangential control			6FC5800-0AM06-0YB0	M06	N	N	O	O	O	O					
Position switching signals/cam controller:	¹⁾ Position switching signals only.		6FC5800-0AM07-0YB0	M07	S ¹⁾	S ¹⁾	O	O	O	O					
• Max. number of pairs					8	8	16	16	16	16					
Axis container	SW version 2.6 and higher within 31 axes.				N	N	N	N	S	S					
Advanced Position Control APC			6FC5800-0AM13-0YB0	M13	N	N	N	N	O	O					
Spindle functions															
Analog spindle speed	¹⁾ With MCPA. ²⁾ With ADI 4.				S ¹⁾	S ¹⁾	S ²⁾	S ²⁾	N	N					
Digital spindle speed					S	S	S	S	S	S					
Spindle speed, max. programmable value range: 10 ⁶ ... 0,0001 (display: ±999999999.9999)					S	S	S	S	S	S					
5 gear stages					S	S	S	S	S	S					
Automatic gear stage selection					S	S	S	S	S	S					
Oriented spindle stop					S	S	S	S	S	S					
Spindle speed limitation (min./max.)					S	S	S	S	S	S					
Constand cutting rate					S	S	S	S	S	S					
Spindle control via PLC (positioning, oscillation)	¹⁾ With plus and pro versions.				S ¹⁾	S	S	S	S	S					
Changeover to axis mode	¹⁾ With plus and pro versions.				S ¹⁾	S	S	S	S	S					
Axis synchronization on-the-fly					N	N	S	S	S	S					
Thread run-in and run-out programmable					S	S	S	S	S	S					
Thread cutting with constant or variable pitch					S	S	S	S	S	S					
Tapping with compensating chuck/rigid tapping					S	S	S	S	S	S					
Interpolations															
Floating point accuracy (80 bit floating point accuracy)					S	S	S	S	S	S					
Linear interpolating axes	¹⁾ With value version: 3.				S ⁴⁾	S	S	S	S	S					
• Maximum	¹⁾ With value version: 3.				4 ¹⁾	4	4	4	4	4					
Circle via center point and end point					S	S	S	S	S	S					
Circle via interpolation point					S	S	S	S	S	S					
Helical interpolation	¹⁾ With value version: 2D+1.				2D+2 ¹⁾	2D+2	2D+2	2D+6	2D+2	2D+6					
Universal interpolator NURBS (non uniform rational B-splines)					N	N	S	S	S	S					
Continous-path mode with programmable rounding clearance					N	N	S	S	S	S					
Multi-axis interpolation (> 4 interpolating axes)			6FC5800-0AM15-0YB0	M15	N	N	N	O	N	O					
Motion control: Advanced Surface			6FC5800-0AS07-0YB0	S07	N	N	N	N	O	O	O	O	N	N	N

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
3-axis compressor	SW version 2.6 and higher in basic version.				S	N	N	N	S	S					
5-axis compressor	SW version 2.6 and higher in basic version.				N	N	N	N	S	S					
Spline interpolation (A-, B- and C splines)	SW version 2.6 and higher.	6FC5800-0AS16-0YB0	S16		S	N	N	N	O	O					
Spline interpolation (A-, B- and C splines/compressor) for 3-axis machining	Up to SW version 2.5.	6FC5800-0AM16-0YB0	M16		S	N	O	O	O	O					
Spline interpolation (A-, B- and C splines/compressor) for 5-axis machining	Up to SW version 2.5.	6FC5800-0AM17-0YB0	M17		N	N	O	O	O	O					
Polynomial interpolation		6FC5800-0AM18-0YB0	M18		N	N	O	O	O	O					
Involute interpolation		6FC5800-0AM21-0YB0	M21		N	N	O	O	O	O					
Continue machining at the contour (retrace support)	Precondition: Loadable compile cycle and cross-mode actions M43.	6FC5800-0AM24-0YB0	M24		N	N	O	O	O	O					
Crank interpolation CRIP	Precondition: Loadable compile cycle.	6FC5800-0AN04-0YB0	–		N	N	N	O	N	O	O	O	N	N	
Couplings															
TRAIL coupled-motion axes					N	N	S	S	S	S					
Synchronous spindle/multi-edge turning COUP		6FC5800-0AM14-0YB0	M14		N	N	O	O	O	O					
Axial coupling in the machine coordinate system MCSC	Precondition: Loadable compile cycle.	6FC5800-0AM23-0YB0	M23		N	N	N	O	N	O					
Master value coupling and curve table interpolation LEAD	¹⁾ With restricted functionality, see export versions.	6FC5800-0AM20-0YB0	M20		N	N	O ₁₎	O	O ₁₎	O					
Electronic gear EG	¹⁾ With restricted functionality, see export versions.	6FC5800-0AM22-0YB0	M22		N	N	O ₁₎	O	O ₁₎	O					
Pair of synchronized (gantry axis) Max. number		6FC5800-0AM02-0YB0	M02		O ₁	O ₁	O ₈	O ₈	O ₈	O ₈					
Master/slave for drives		6FC5800-0AM03-0YB0	M03		O	O	O	O	O	O					
Generic couplings CP															
Generic coupling Standard, CP-Standard															
• 4 axis pairs in simultaneous coupled motion					N	N	S	S	S	S	S	S	S	N	N
Generic coupling Static, CP-Static		6FC5800-0AM75-0YB0	M75												
• 1 x simple synchronous spindle coupling ratio 1:1					N	N	N	N	O	O	O	O	N	N	
Generic coupling Basic, CP-Basic		6FC5800-0AM72-0YB0	M72												
• 4 axis pairs in simultaneous coupled motion and • 1 x synchronous spindle/mult-edge turning or master value coupling/curve table interpolation or axial coupling in the machine coordinate system	¹⁾ With restricted functionality, see export versions.				N	N	O ₁₎	O	O ₁₎	O	O	O	N	N	
Generic coupling Comfort, CP-Comfort		6FC5800-0AM73-0YB0	M73												

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					802D sl - T/M	802D sl - G/N	840 DiE sl		840 Di sl		840DE sl		840 D sl		Blank field: Function is not dependent on operating software				
							SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI								
• 4 axis pairs in simultaneous coupled motion and • 4 x synchronous spindle/multi-edge turning and/or master value coupling/curve table interpolation and/or axial coupling in the machine coordinate system and • 1 x electronic gear for 3 leading axes (without curve table, without cascading)		1) With restricted functionality, see export versions.			N	N	O 1)	O	O 1)	O	O	O	O	N	N				
Generic coupling Expert, CP-Expert			6FC5800-0AM74-0YB0	M74															
• 8 axis pairs in simultaneous coupled motion and • 8 x synchronous spindle/multi-edge turning and/or master value coupling/curve table interpolation and/or axial coupling in the machine coordinate system and • 8 x electronic gear for 3 leading axes (with curve tables, with cascading) • 5 x electronic gear for 5 leading axes (with curve tables, with cascading)		1) With restricted functionality, see export versions. 2) Precondition: NCU 720.2/NCU 730.2.			N	N	O 1)	O	O 1)2)	O 2)	O	O	O	N	N				
Compensation of a forced mechanical coupling AXCO		Precondition: Loadable compile cycle.	6FC5800-0AM81-0YB0	M81	N	N	N	O	N	O	O		N	N	N				
Transformation redundant axes on workpiece RDCC		Precondition: Loadable compile cycle.	6FC5800-0AN62-0YB0	N26	N	N	N	N	N	O	O		N	N	N				
Transformations																			
Cartesian point-to-point (PTP) travel					N	S	S	S	S	S									
TRANSMIT and cylinder surface transformation		1) With plus and pro versions.	6FC5800-0AM27-0YB0	M27	S 1)	N	O	O	O	O									
Inclined axis			6FC5800-0AM28-0YB0	M28	N	S	O	O	O	O									
Concatenated transformations (inclined axis TRAANG after TRAORI/ cardan millhead/TRANSMIT/TRACYL)					N	N	S	S	S	S									
Transformation package for handling RCTRA		Precondition: Loadable compile cycle.	6FC5800-0AM31-0YB0	M31	N	N	N	O	N	O									
Transformation robotics extended ROBX		Precondition: Loadable compile cycle.	6FC5800-0AN54-0YB0	N54	N	N	N	O	N	O									
Generic transformation		Precondition: Machining package 5 axes or machining package milling.			N	N	N	S	N	S									
Transformation DOPPELTRANSMIT 2TRA		Precondition: Loadable compile cycle.	6FC5800-0AM25-0YB0	M25	N	N	N	N	N	O									
Transformation for pantograph kinematics 2 axes SCIS		Precondition: Loadable compile cycle.	6FC5800-0AM51-0YB0	M51	N	N	N	N	N	O									
3-axis transformation PACO for parallel kinematics (1st channel)		Precondition: Loadable compile cycle.	6FC5800-0AM44-0YB0	–	N	N	N	N	N	O									
Transformation TRIPOD HYBRID basis, 5 axes, THYK		Precondition: Loadable compile cycle.	6FC5800-0AN36-0YB0	N36	N	N	N	O	N	O									
Double generic transformation DGEN		Precondition: Loadable compile cycle.	6FC5800-0AN34-0YB0	N34	N	N	N	O	N	O									

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			Type (for complete Order-No., see notes)	802D sl - T/M	802D sl - G/N	840 DIE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Measuring functions/measuring cycles														
Measuring stage 1 2 probes (switching) with/without deletion of distance-to-go	See HMI software. 1) 1 probe. 2) With plus and pro versions only. 3) Precondition: MCI board extension.				S 1)2)	S 1)	S 3)	S 3)	S	S				
Measuring stage 2 Axial measuring, measuring from synchronized actions, cyclic measuring	1) Precondition: MCI board extension.	6FC5800-0AM32-0YB0	M32		N	N	O 1)	O 1)	O	O				
Measuring cycles for drilling/milling and turning Calibrate workpiece probe, workpiece measurement, tool measurement	1) SW version 2.6 and higher.	6FC5800-0AP28-0YB0	P28		N	N	N	N	O	O	O 1)	O	O	O
Measure kinematics (determine transformation data of rotary axis)		6FC5800-0AP18-0YB0	P18		N	N	N	N	O	O	O	O	O	O
Technologies														
Punching/nibbling		6FC5800-0AM33-0YB0	M33		N	S	O	O	O	O				
Oscillation functions block-related, modal and asynchronous		6FC5800-0AM34-0YB0	M34		N	S	O	O	O	O				
More than one feed in block, e.g. for calipers					N	S	S	S	S	S				
Handwheel override					N	S	S	S	S	S				
Contour handwheel		6FC5800-0AM08-0YB0	M08		N	N	O	O	O	O				
Electronic transfer Contains the option: Master value coupling LEAD	1) With restricted functionality, see export versions.	6FC5800-0AM35-0YB0	M35		N	N	O 1)	O	O 1)	O				
Electronic transfer CP Contains the option: CP Comfort	1) With restricted functionality, see export versions.	6FC5800-0AM76-0YB0	M76		N	N	O 1)	O	O 1)	O				
Machining package 5 axes Contains the option: Multi-axes interpolation (> 4 interpolating axes) 5-axis functionality (TRAORI, RTCP)		6FC5800-0AM30-0YB0	M30		N	N	N	O	N	O				
Machining package milling Contains the options: Machining package 5 axes incl. multi-axes interpolation, spline interpolation (A, B and C splines/compressor for 5-axis machining and 3D tool radius compensation).		6FC5800-0AM26-0YB0	M26		N	N	N	O	N	O				
Machining package 5 axis Additional function 7th axis		6FC5800-0AS01-0YB0	S01		N	N	N	N	N	O				
Technology package milling SINUMERIK MDynaMic 3 axes Contains the options: ShopTurn/ShopMill, residual material detection and machining for contour pockets and cutting, 3D sumulation 1 (finished part), simultaneous recording, advanced surface, spline interpolation, Transmit and cylinder surface transformation, measuring cycles, additional HMI memory on CF card	1) SW version 2.6 and higher.	6FC5800-0AS32-0YB0	S32		N	N	N	N	O	O	O	N	N	N

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			Type (for complete Order-No., see notes)	802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software					
										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
Technology package milling SINUMERIK MDynamics 5 axes Contains the options: ShopTurn/ShopMill, residual material detection and machining for contour pockets and cutting, 3D simulation 1 (finished part), simultaneous recording, advanced surface, spline interpolation, Transmit and cylinder surface transformation, measuring cycles, additional HMI user memory on CF card, machining package 5 axes, 3D tool radius compensation, measure kinematics		1) SW version 2.6 and higher.	6FC5800-0AS33-0YB0	S33	N	N	N	N	N	O ₁₎	O	N	N	N	N
Typical block cycle times (set of processing time) in [ms] • NCU 710.3 PN • NCU 720.3 PN • NCU 730.3 PN		Precondition: Compressor.			N	N	N	N	1,5	1,5					
					N	N	N	N	1,2	1,2					
					N	N	N	N	0,4	0,4					
Handling package ¹⁾ Contains the options: 3 additional axes, 3 additional channels, transformation handling ²⁾ , synchronized actions level 2		1) SW version 2.6 and higher. Tool offsets and spindles are not possible. 2) Precondition: Loadable compile cycle.	6FC5800-0AS31-0YB0	S31	N	N	N	N	N	O			N	N	N
Extrapolated switching signals XOUT		Precondition: Loadable compile cycle.	6FC5800-0AN51-0YB0	N51	N	N	N	N	N	O					
Plastics package IME SINUMERIK injection molding (fully electric) Contains the options: 3 additional axes, travel to fixed stop, pair of synchronous axes (gantry), master/slave for drives, position switching signals/cam controller, polynomial interpolation, transformation package Handling, synchronized actions level 2		SW version 2.7 and higher. Tool offsets and spindles are not possible.	6FC5800-0AS40-0YB0	S40	N	N	N	N	N	O					
Velocity adaptation VADA		Precondition: Loadable compile cycle.	6FC5800-0AN05-0YB0	—	N	N	N	O	N	O					
Path-related pulse output PRIG		Precondition: Loadable compile cycle.	6FC5800-0AN76-0YB0	N76	N	N	N	N	N	O					
CCG - compiler as DLL for PCU 50 (CCG = Cam Contour Grinding)			6FC5800-0AP10-0YB0	P10	N	N	N	N	O	O					
Motion-synchronized actions															
High-speed CNC inputs/outputs															
• Digital inputs on-board		1) Precondition: MCPA. 2) Precondition: MCI board extension.			8 ₁₎	8 ₁₎	4 ₂₎	4 ₂₎	4	4					
• Digital inputs or outputs on-board		1) Precondition: MCPA. 2) Precondition: MCI board extension.			8 ₁₎	8 ₁₎	4 ₂₎	4 ₂₎	4	4					

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					802D sl - T/M		802D sl - G/N		840 DiE sl		840 Di sl		840DE sl		840 D sl		Blank field: Function is not dependent on operating software				
																	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Notes (footnotes are applicable line by line)			Type (for complete Order-No., see notes)			802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI					
• Expansion via SIMATIC S7 I/O 32 digital inputs/32 digital outputs 4 analog inputs/4 analog outputs						N	N	O	O	O	O										
Synchronized actions (max. 24) and high-speed auxiliary function output incl. 3 synchronized functions			Max. 159 elements for synchronized actions. 1) With restricted functionality, see export versions.			N	N	S1)	S	S1)	S										
Synchronized actions stage 2			1) With restricted functionality, see export versions.	6FC5800-0AM36-0YB0	M36	N	N	O1)	O	O1)	O										
Positioning axes and spindles via synchronized actions (command axes)					N	N	S	S	S	S											
Analog value control in interpolation cycle (IPO cycle) (Precondition: analog output)			1) Precondition: SIMATIC DP ET 200 analog module.			N	N	S1)	S1)	S	S										
Analog output, path-velocity-dependent Laser power control			1) Precondition: SIMATIC DP ET 200 analog module.	6FC5800-0AM37-0YB0	M37	N	N	O1)	O1)	O	O										
Laser switching signal, high-speed HSLC			Precondition: Loadable compile cycle.	6FC5800-0AM38-0YB0	M38	N	N	O	O	O	O										
Clearance control: • 1D in interpolation cycle via synchronized actions					N	N	S	S	S	S											
• Clearance control CLC 1D/3D in position control cycle including in the interpolation cycle (IPO cycle)			Precondition: Loadable compile cycle. 1) With restricted functionality, see export versions.	6FC5800-0AM40-0YB0	M40	N	N	O1)	O	O1)	O										
• Clearance control 1D/3D in position control cycle, free direction			Precondition: Loadable compile cycle and M40.	6FC5800-0AM65-0YB0	M65	N	N	O	O	O	O										
Evaluation of internal drive variables (precondition for Adaptive Control)				6FC5800-0AM41-0YB0	M41	N	N	N	N	O	O										
Continuous dressing (parallel dressing, online modification of the tool offset)					N	S	S	S	S	S	S										
Asynchronous subroutines ASUB: • Interrupt routines with fast retraction from the contour			High-speed CNC inputs/outputs required.			N	N	S	S	S	S										
Cross-mode actions (ASUBs and synchronized actions in all operating modes)				6FC5800-0AM42-0YB0	M42	N	N	O	O	O	O										
				6FC5800-0AM43-0YB0	M43	N	N	O	O	O	O										
Open Architecture																					
SINUMERIK Operate Program screens, operating areas and user interfaces SINUMERIK Operate programming package (Create MyHMI/3GL) (OEM contract required)			See HMI software for CNC controls.	6FC5861-1YC00-0YA0		N	N	N	N	O	O	O	N	N	N	N					
				6FC5861-1YC...YA0																	
				6FC5861-1YP00-0YB0																	
				6FC5861-1YP00-0YL8																	
				6FC5861-1YC...YA8																	
SINUMERIK Operate runtime license OA programming (Run MyMHI/3GL)				6FC5800-0AP60-0YB0	P60	N	N	N	N	O	O	O	N	N	N	N					

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					802D sl - T/M		802D sl - G/N		840 DiE sl		840 Di sl		840DE sl		840 D sl		Blank field: Function is not dependent on operating software				
																	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Notes (footnotes are applicable line by line)			Type (for complete Order-No., see notes)																		
SINUMERIK HMI copy licenses CE (Run MyHMI/SIMATIC OP)	For SIMATIC Basic/Comfort Panels		6FC5800-0AP03-0YB0	P03	N	N	O	O	O	O	O	O	O	O	O	O	N	N	N	N	
SINUMERIK Operate runtime license OA .net			6FC5800-0AP66-0YB0	P66	N	N	N	N	O	O	O	O	O	O	O	O	N	N	N	N	
SINUMERIK Operate runtime license OA Easy Screen (SINUMERIK Integrate Run MyScreens)	¹⁾ Free screens: 5		6FC5800-0AP64-0YB0	P64	N	N	O	O	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	N	N	N	N	
HMI-Advanced																					
User interface expansion					N	N	F	F	F	F	F	F	F	F	F	N	S 20	S 20	S 20	S 20	
• Free screens																					
SINUMERIK HMI programming package (OEM contract required)	See HMI software for CNC controls. ¹⁾ Precondition: PCU 50		6FC5253-0BX20-0AG0 6FC5253-. BX20-.AG0 6FC5253-0BX20-0AG1 6FC5253-0BX20-0AG2 6FC5253-.BX20-.AG3		N	N	O	O	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	N	O	N	N	N	
SINUMERIK HMI configuring package WinCC flexible 2008 (OEM contract required)	See HMI software for CNC controls. ¹⁾ Precondition: PCU 50		6FC5253-0CX25-0AG0 6FC5253-.CX25-.AG0 6FC5253-0CX25-0AG1 6FC5253-0CX25-0AG2 6FC5253-.CX25-.AG3		N	N	O	O	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	N	O	N	N	N	
SINUMERIK HMI copy license OA and Expand User Interface from the 21st screen			6FC5800-0AP02-0YB0	P02	N	N	O	O	O	O	O	O	O	O	O	N	O	O	O	O	
NCK Open Architecture (SINUMERIK Integrate Create MyCC)	SINUMERIK Integrate, see NC 62. OEM contract required.				N	N	N	N	N	N	N	N	N	N	N						
OA package NCK (Create MyCC)	¹⁾ On request.																				
COA package NCK (Create MyCCI)	COA contract required.		6FC5863-1YP00-0YB8		N	N	N	N	N	N	N	N	N	N	N						
• Based on Customized Interface																					
SINUMERIK NCK Runtime OA (Run MyCC)	Precondition: Create MyCC		6FC5800-0AM04-0YB0	M04	N	N	N	O ¹⁾	N	N	N	N	N	N	N						
	¹⁾ On request.																				
SINUMERIK Integrate Run MyCCI /IMD	Precondition: Create MyCCI		6FC5800-0AN13-0YB0	N13	N	N	N	O ¹⁾	N	N	N	N	N	N	N						
	¹⁾ On request.																				
SINUMERIK Integrate Run MyCCI /VCI	Precondition: Create MyCCI		6FC5800-0AN74-0YB0	N74	N	N	N	O ¹⁾	N	N	N	N	N	N	N						
	¹⁾ On request.																				
SINUMERIK Integrate Run MyCCI /COOC	Precondition: Create MyCCI		6FC5800-0AM67-0YB0	M67	N	N	N	O ¹⁾	N	N	N	N	N	N	N						
	¹⁾ On request.																				
CNC programming language																					
Programming language (DIN 66025 and high-level language expansion)					S	S	S	S	S	S	S	S	S	S	S						
Main program call from main program and subroutine					S	S	S	S	S	S	S	S	S	S	S						
Subroutine levels/interrupt routines, max.	¹⁾ SW version 1.5/2.5 and higher.				8/0	8/0	11/4	11/4	16/2 ¹⁾	16/2 ¹⁾	16/2 ¹⁾	16/2 ¹⁾	16/2 ¹⁾	16/2 ¹⁾	16/2 ¹⁾						
Number of subroutine passes ≤ 9999					S	S	S	S	S	S	S	S	S	S	S						
Number of levels for skip (/0 to /...)					1	1	8	8	8	8	8	8	8	8	8						
Polar coordinates					S	S	S	S	S	S	S	S	S	S	S						
1/2/3-point contours	¹⁾ With value version.				S ¹⁾	N	S	S	S	S	S	S	S	S	S						
Dimensions metric/inch, changeover manually or via program					S	S	S	S	S	S	S	S	S	S	S						

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl					
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Notes (footnotes are applicable line by line)			Type (for complete Order-No., see notes)												
Inverse time feedrate					S	S	S	S	S	S					
Auxiliary function output:															
• Via M word, max. programmable value range: INT 2 ³¹ -1					S	S	S	S	S	S					
• Via H word, max. programmable value range: REAL ± 3.4028 ex 38 (display: ± 999999999.9999) INT -2 ³¹ ... 2 ³¹ -1			¹⁾ With plus and pro versions.		S ¹⁾	S	S	S	S	S					
High-level CNC language with:															
• User variables, configurable					N	N	S	S	S	S					
• Predefined user variables (arithmetic parameters)					S	S	S	S	S	S					
• Predefined user variables (arithmetic parameters), configurable					N	N	S	S	S	S					
• Read/write system variables			¹⁾ Restricted scope.		S ¹⁾	S ¹⁾	S	S	S	S					
• Indirect programming					S	S	S	S	S	S					
• Program jumps and branches					S	S	S	S	S	S					
• Program coordination with WAIT, START, INIT					N	N	S	S	S	S					
• Arithmetic and trigonometric functions					S	S	S	S	S	S					
• Compare operations and logic operations					S	S	S	S	S	S					
• Macro technique					N	N	S	S	S	S					
• Control structures IF-ELSE-ENDIF					S	S	S	S	S	S					
• Control structures WHILE, FOR, REPEAT, LOOP					N	N	S	S	S	S					
• Commands to HMI					N	N	S	S	S	S	N	S	S	S	S
• STRING functions					N	N	S	S	S	S					
Program functions:															
• Dynamic preprocessing memory (FIFO)					S	S	S	S	S	S					
• Look ahead					S	S	S	S	S	S					
• Frame concept					S	S	S	S	S	S					
• Inclined-surface machining with frames					N	N	S	S	S	S					
• Axis/spindle replacement					N	N	S	S	S	S					
• Geometry axes, switchable online in the CNC program					N	N	S	S	S	S					
• Program preprocessing			¹⁾ SW version 1.5/2.5 and higher in basic version.	6FC5800-0AM00-0YB0	M00	N	N	O	O ¹⁾	O ¹⁾					
Online ISO dialect interpreter					S	N	S	S	S	S					
Program/workpiece management:															
• Part programs on NCU, max. number			SW version 2.6 and higher. 512 files per directory.		99	99	500	500	1000	1000					
• Workpieces on NCU, max. number			In total max. 256 directories.		N	N	250	250	250	250	250	250	250	250	250
• Workpieces on hard disk, max. number			In total max. 100000 user files.		N	N	1000	1000	O	O	100000	1000		1000	1000
• In additional HMI user memory on CF card of the NCU			In total max. 100000 user files and directories.		N	N	N	N	O	O					

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Notes (footnotes are applicable line by line)	Type (for complete Order-No., see notes)														
• On additional plug-in CF card	¹⁾ On the front.			S ₁₎	S ₁₎	V ₂₎	V ₂₎	V ₂₎	V ₂₎						
	²⁾ With PCU 50.			N	N	S	S	F	F	N	S	N	S	S	
				N	N	O	O	O	O	S	S	S	S	S	
• On integral hard disk of PCU 50. • On USB storage medium, e.g. floppy disk drive, memory stick	¹⁾ With version pro.			S ₁₎	S ₁₎	F	F	S ₃₎	S ₃₎	O ₂₎	O ₂₎	O ₂₎	O ₂₎	O ₂₎	
	²⁾ Precondition: Manging of network drives.														
	³⁾ SW version 2.6 and higher in basic version.			N	N	V	V	F	F	N	S	N	N	N	
• On network drive				N	N	V	V	F	F	N	S	N	N	N	
				N	N	V	V	F	F	N	S	N	N	N	
				1	1	V	V	16	16	16	16	16	1	1	
Number of basic frames, max.				6	6	V	V	100	100	100	100	100	100	100	
Number of settable offsets, max.				N	N	S	S	S	S						
Work offsets, programmable (frames)				S	S	V	V	F	F	N	S	S	S	S	
Scratching, determining work offset				N	N	S	S	S	S	S	S	S	S	S	
Work offsets, external (PLC)				N	N	V	V	S	S	S	S	S	S	S	
Global and local user data				N	N	V	V	S	S	S	S	S	S	S	
Global program user data				N	N	V	V	S	S	S	S	S	S	S	
Display system variables (also via online configurable display) and log them	¹⁾ With PCU 50.			N	N	V	V	F	F	S	S	N	S ₁₎	S ₁₎	
Programming support															
Program editor:															
• Text editor with editing functions: Selecting, copying, deleting				S	S	S	S	F	F	S	S	S	S	S	
• Dual editor				N	N	V	V	F	F	S	S	S	N	N	
• Multi-editor, max. 4	Precondition: OP 019.			N	N	N	N	O	O	S	N	N	N	N	
• Write protection for lines				N	N	V	V	F	F	S	S	S	S	S	
• Suppression of lines in the display				N	N	V	V	F	F	S	S	S	S	S	
• Machining step programming		6FC5800-0AP04-0YB0	P04	N	N	F	F	F	F	N	N	N	O	O	
Multiple clamping of various workpieces	¹⁾ Precondition: P04 ²⁾ Precondition: P17	6FC5800-0AP14-0YB0	P14	N	N	F	F	F	F	O ₂₎	N	N	O ₁₎	N	
ShopMill/ShopTurn															
• Machining step programming		6FC5800-0AP17-0YB0	P17	N	N	F	F	F	F	O	N	N	N	N	
programSYNC															
• Step chains programming		6FC5800-0AP05-0YB0	P05	N	N	N	N	F	F	O	N	N	N	N	
Programming support for geometry entries:															
• ProgramGUIDE (programming support for cycles, dynamic programming graphics, animated elements)	¹⁾ SW version 2.5 and higher.			N	N	V	V	F	F	S ₁₎	N	N	N	N	
Geometry processor with programming graphics/ Free contour input (contour calculator)	¹⁾ With plus and pro versions.			S ₁₎	S	V	V	F	F	N	S	S	S	S	
• Screens for 1/2/3-point contours (contour definition programming)				S	S	V	V	F	F	N	S	S	S	S	
Programming support for cycles:															

				SINUMERIK 802D sl/840Di sl/840D sl											
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											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• Screens and stationary auxiliary displays					N	N	V	V	F	F	N	S	S	S	S
• Dynamic programming graphics during programming					N	N	F	F	F	F	S	N	N	S	S
• Programming support can be extended, e.g. customer cycles		1) On request. 2) With Expand User Interface, see, HMI/MMC Commissioning Manual. 3) With SINUMERIK Operate runtime license OA Easy Screen.			1)	1)	V	V	F	F	S 3)	S 2)	S 2)	S 2)	S 2)
Technology cycles for drilling/milling and turning		1) SW version 2.5 and higher.			S	N	V	V	F	F	S 1)	S	S	S	S
Pocket milling with free contour definition and islands					N	N	V	V	F	F	N	N	N	S	S
Residual material detection and machining for contour pockets and cutting		1) Precondition: Machining step programming. 2) SW version 2.6 and higher.	6FC5800-0AP13-0YB0	P13	N	N	F	F	F	F	O 2)	N	N	O 1)	O 1)
Access protection for cycles					S	S	S	S	S	S	S	S	S	S	S
Cycle protection (OEM)		1) SW version 2.6 and higher.	6FC5800-0AP54-0YB0	P54	N	N	N	N	O 1)	O 1)	O	O	N	N	N
Programming and operator support for machines:															
• ShopTurn HMI					N	N	F	F	F	F	N	N	N	N	S
• Manual machine (ShopTurn manual)			6FC5800-0AP11-0YB0	P11	N	N	F	F	F	F	N	N	N	N	O
• ShopMill HMI					N	N	F	F	F	F	N	N	N	S	N
• ShopTurn HMI/ShopMill HMI for SINUMERIK 840Di sl incl. HMI-Advanced		1) Up to SW version 1.4.	6FC5800-0AP15-0YB0	–	N	N	O 1)	O 1)	N	N					
CAD-Reader for PC		See HMI software for CNC controls.	6FC5260-0AY00-0AG1 6FC5260-0AY00-0AG0 6FC5260- .AY00- .AG0 6FC5260-0AY00-0AG2 6FC5260- .AY00- .AG8		N	N	O	O	O	O					
Simulation															
Up to n channels can be simulated		1) Precondition: programmSync option.			N	N	2	2	10	10	4 1)	N	N	N	N
Up to n channels can be simulated sequentially					N	N	2	2	10	10	1	10	1	1	1
Several channels and programs can machine the same blank part in succession					N	N	V	V	F	F	N	S	N	N	N
Simulation of program X, while program Y is being executed		1) With NCU 720/NCU 730.			N	N	V	V	F	F	S 1)	S	N	N	N
Quick view for mold-making programs		1) With PCU 50. 2) SW version 2.7 and higher.			N	N	F	F	F	F	S 2)	S	N	S 1)	N
Drilling/milling (tool carrier vertical to the workpiece):															
• Single-sided 2D view, dynamic					S	N	N	N	N	N	N	N	N	N	N

			SINUMERIK 802D sl/840Di sl/840D sl												
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										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
• Simulation of milling multiple sides 2D dynamic, 3D static			6FC5800-0AP21-0YB0	P21	N	N	V	V	F	F	N	S	O	S	N
• ShopMill simultaneous recording			6FC5800-0AP23-0YB0	P23	N	N	F	F	F	F	N	N	N	O	N
Real-time simulation of current machining operation															
Turning (tool carrier vertical to the workpiece):															
• Traverse path simulation without model, broken-line graphics					S	N	V	V	F	F	N	S	S	N	N
• Contour of blank part can be specified					N	N	V	V	F	F	N	S	N	N	S
• Simulation in working plane G18					N	N	V	V	F	F	N	S	S	N	S
• Simulation in working planes G17/G19					N	N	V	V	F	F	N	S	N	N	S
• Full cut/partial cut with circumferential edges, face and cylinder surface, milling and drilling machines operations					N	N	V	V	F	F	N	S	N	N	S
• Counterspindle					N	N	V	V	F	F	N	S	N	N	S
• 3D simulation of the finished part			6FC5800-0AP20-0YB0	P20	N	N	F	F	F	F	N	N	N	N	O
• ShopTurn simultaneous recording			6FC5800-0AP24-0YB0	P24	N	N	F	F	F	F	N	N	N	N	O
Real-time simulation of current machining operation															
Drilling/milling/turning (tool carrier vertical to the workpiece):															
• Turning					N	N	V	V	F	F	S	N	N	N	N
• Turn-milling					N	N	V	V	F	F	S	N	N	N	N
• Mill-turning with supported kinematics			¹⁾ Application-specific by the machine manufacturer.		N	N	V	V	F	F	S ₁₎	N	N	N	N
• Milling up to 5-axis machining with TRAORI					N	N	V	V	F	F	S	N	N	N	N
• Simultaneous recording (real-time simulation of current machining)			6FC5800-0AP22-0YB0	P22	N	N	V	V	F	F	O	N	N	N	N
• 2D simulation (finished part)					N	N	V	V	F	F	S	N	N	N	N
• 3D simulation 1 (finished part)			6FC5800-0AP25-0YB0	P25	N	N	V	V	F	F	O	N	N	N	N
Grinding and nibbling:															
• Traverse path simulation without model (broken-line graphics)					N	S	N	N	N	N					
Operating modes															
JOG:					S	S	S	S	S	S	S	S	S		
• Handwheel selection					S	S	V	V	S	S	S	S	S	N	N
• Switchover: inch/metric					S	S	V	V	S	S	S	S	S	S	S
• Manual measurement of work offset					S	N	V	V	F	F	S	S	S	S	S
• Manual measurement of tool offset					S	N	F	F	F	F	S	N	N	S	S
• Automatic tool/workpiece measurement			¹⁾ Tool measuring only.		S ₁₎	N	V	V	V	V	S	S	N	S	S ₁₎
• Dressing grinding wheels					N	S	N	N	N	N	N	N	N	N	N
• Reference point approach automatic/via CNC program					S	S	S	S	S	S	S	S	S	S	S
MDI:					S	S	V	V	S	S	S	S	S		
• Input in text editor					S	S	V	V	S	S	S	S	S	S	S
• Save MDI program					S	S	V	V	S	S	S	S	S	N	N
• Input screen forms for technology and positioning, cycle support					N	N	V	V	S	S	N	N	N	S	S

			SINUMERIK 802D sl/840Di sl/840D sl												
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		Type (for complete Order-No., see notes)		802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI	
Teach-in:				S	N	V	V	S	S	S	S	S	N	N	
• Teach positions in MDI buffer				S	N	V	V	S	S	S	S	S	N	N	
• Teach-in function handling				N	N	N	N	S	S	S	S	S	N	N	
Automatic:				S	S	S	S	S	S	S	S	S	S	S	
• Execution from storage medium on rear USB interface of TCU/PCU, e.g. card reader, memory stick				N	N	V	V	S	S	S	S	S	S	S	
• Execution of HMI memory on NCU's CF card	¹⁾ External CF card on front panel. ²⁾ On external CF card in PCU 50. ³⁾ On CF card of NCU, not with HMI on PCU 50.	6FC5800-0AP12-0YB0	P12	S ₁₎	S ₁₎	S ₂₎	S ₂₎	O ₃₎	O ₃₎	O ₃₎	N	O	O ₃₎	O ₃₎	
• Execution from network drive	¹⁾ With pro version. ²⁾ Precondition: Managing of network drives. ³⁾ SW version 2.6 and higher.	6FC5800-0AP01-0YB0	P01	S ₁₎₂₎	S ₁₎₂₎	V	V	S ₂₎₃₎	S ₂₎₃₎	S ₃₎	O ₂₎	O ₂₎	O	O	
• Execution from hard disk	¹⁾ On PCU 50.			N	N	V	V	F	F	S ₁₎	S	N	S ₁₎	S ₁₎	
• Program control				S	S	V	V	S	S	S	S	S	S	S	
• Program editing				S	S	V	V	S	S	S	S	S	S	S	
• Overstoring				N	N	V	V	S	S	N	S	S	S	S	
• DRF offset				N	N	V	V	S	S	S	S	S	S	S	
• Block search with/without calculation				S	S	V	V	S	S	S	S	S	S	S	
Repos (repositioning on the contour)				S	S	S	S	S	S	S	S	S	S	S	
• With operator command/semi-automatically				N	N	S	S	S	S	S	S	S	S	S	
• Program-controlled				S	S	S	S	S	S	S	S	S	S	S	
Preset				S	S	V	V	S	S	N	S	S	S	S	
Set actual value				N	N	V	V	S	S	N	S	S	S	S	
Tools															
Tool types:						V	V	S	S	S	S	S	N	S	
• Turning				S	N	V	V	S	S	S	S	S	N	S	
• Drilling/milling				S	N	V	V	S	S	S	S	S	S	S	
• Grinding				N	S	V	V	S	S	N	S	S	N	N	
• Nibbling				N	S	V	V	S	S	N	S	S	N	N	
• Groove sawing				N	N	V	V	S	S	N	S	S	N	N	
Tool radius compensations in plane:															
• With approach and retract strategies				N	N	S	S	S	S						
• With transition circle/ellipse on outer edges				S	S	S	S	S	S						
Configurable intermediate blocks with tool radius compensation active				N	N	S	S	S	S						
3D tool radius compensation		6FC5800-0AM48-0YB0	M48	N	N	O	O	O	O	O	O	O	O	N	
Tool change via T number				S	S	S	S	S	S	S	S	S	S	S	

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl										
					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Tool carrier with orientation capability					N	N	S	S	S	S	S	S	S	N	
Look-ahead detection of contour violations					S	S	S	S	S	S					
Grinding-specific tool offset with grinding wheel surface speed					N	S	S	S	S	S	S	S	N	N	
Tool orientation interpolation		Precondition: Machining package 5 axes.			N	N	N	S	N	S					
Online tool length compensation					N	N	N	N	S	S					
Operation <u>without</u> tool management:					S	S	V	V	S	S	S	S	N	N	
• Tool offset selection via D number without T assignment (flat D number)					N	N	V	V	S	S	N	S	N	N	
• Editing of tool data					S	S	V	V	S	S	S	S	N	N	
• Tool offset selection via T and D numbers					S	S	S	S	S	S	S	S	N	N	
• Number of tools/cutting edges in tool list		¹⁾ With value version: 32. With plus version: 64.			128 ¹⁾	128 ¹⁾	V 600/ 1500	V 600/ 1500	600/ 1500	600/ 1500			N	N	
Operation <u>with</u> tool management, up to 3 tool magazines (corresponding to one real magazine)		¹⁾ SW version 1.5/2.5 and higher.			N	N	N	N	S ¹⁾	S ¹⁾					
Operation <u>with</u> tool management with more than 3 magazines		¹⁾ SW version 1.5/2.5 and higher.	6FC5800-0AM88-0YB0	M88	N	N	N	N	O ¹⁾	O ¹⁾					
• System displays in standard software					N	N	N	N	S	S	S	S	S	S	
• User-friendly commissioning via system displays		¹⁾ Precondition: PCU 50.			N	N	N	N	V	V	S	S	N	S ¹⁾	
• Tool list					N	N	N	N	S	S	S	S	S	S	
• Configurable tool lists		¹⁾ One configured list is possible.			N	N	N	N	S	S	S ¹⁾	S	N	S ¹⁾	
• Number of tools/cutting edges in tool list					N	N	V 600/ 1500	V 600/ 1500	600/ 1500	600/ 1500					
• Unambiguous D number structure					N	N	V	V	V	V	S	S	N	N	
• Tool offset selection via T and D number					N	N	S	S	S	S					
• Editing of tool data					N	N	V	V	S	S					
• Editing of OA data		¹⁾ In the configured list.			N	N	V	V	S	S	S	S	S	S ¹⁾	
• Magazine list					N	N	V	V	S	S	S	S	S	S	
• Configurable magazine list					N	N	V	V	S	S	S	S	N	N	
• Max. number of magazines					N	N	32	32	32	32					
• Magazine data					N	N	V	V	S	S	S	S	O	S	
• Vacant position search and positioning					N	N	V	V	S	S	S	S	O	S	
• Easy vacant position search using softkeys					N	N	V	V	S	S	S	S	N	N	
• Loading and unloading of tools					N	N	V	V	S	S	S	S	O	S	
• More than one loading and unloading point per magazine					N	N	V	V	S	S	S	S	N	N	
• Tool cabinet and tool catalog					N	N	V	V	S	S	N	S	N	N	
• Loading and unloading via code carrier system					N	N	V	V	S	S	N	S	N	N	
• Adapter data					N	N	V	V	S	S	N	S	N	N	

			SINUMERIK 802D sl/840Di sl/840D sl											
S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible	Notes (footnotes are applicable line by line)	Order-No. Type (for complete Order-No., see notes)	Order code	802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• Local compensations				N	N	V	V	S	S	N	S	N	N	N
• Monitoring of tool life and workpiece count				S	S	V	V	S	S	S	S	S	S	S
• Monitoring for max. tool speed/acceleration	¹⁾ SW version 2.6 SP1 and higher.	6FC5800-0AS08-0YB0	S08	N	N	N	N	O ¹⁾	O ¹⁾	O	N	N	N	N
Operation <u>with</u> tool management:	¹⁾ Up to SW version 1.4. ²⁾ Up to SW version 1.4/2.4.	6FC5800-0AM50-0YB0	M50	N	N	V ¹⁾	V ¹⁾	O ²⁾	O ²⁾	O	O	O	S	S
• System displays in standard software				N	N	V	V	O	O	O	O	O	S	S
• Comfortable commissioning via system displays	¹⁾ Precondition: PCU 50.			N	N	V	V	O	O	N	O	N	S ¹⁾	S ¹⁾
• Tool list				N	N	O	O	O	O	O	O	O	S	S
• Configurable tool lists	¹⁾ One configured list is possible.			N	N	O	O	O	O	O ¹⁾	O	N	S ¹⁾	S ¹⁾
• Number of tools/cutting edges in tool list				N	N	V ^{600/1500}	V ^{600/1500}	600/1500	600/1500					
• Unambiguous D number structure				N	N	V	V	O	O	N	O	N	N	N
• Tool offset selection via T and D numbers				N	N	S	S	S	S	O	O	O	S	S
• Editing of tool data				N	N	V	V	O	O	O	O	O	S	S
• Editing of OA data	¹⁾ In configured list.			N	N	V	V	O	O	O	O	O	S ¹⁾	S ¹⁾
• Magazine list				N	N	V	V	O	O	O	O	O	S	S
• Configurable magazine list				N	N	V	V	O	O	O	O	N	N	N
• More than one magazine is possible				N	N	32	32	32	32	32	32	32	32	32
• Magazine data				N	N	V	V	O	O	O	O	O	S	S
• Vacant position search and positioning				N	N	V	V	O	O	O	O	O	S	S
• Easy vacant position search using softkeys				N	N	V	V	O	O	N	O	N	N	N
• Loading and unloading of tools				N	N	V	V	O	O	O	O	O	S	S
• More than one loading and unloading point per magazine				N	N	V	V	O	O	O	O	N	N	N
• Tool cabinet and tool catalog				N	N	V	V	O	O	N	O	N	N	N
• Loading and unloading via code carrier system				N	N	V	V	O	O	N	O	N	N	N
• Adapter data				N	N	V	V	O	O	N	O	N	N	N
• Local compensations				N	N	V	V	O	O	N	O	N	N	N
• Monitoring of tool life and workpiece count				S	S	V	V	O	O	O	O	O	S	S
TDI – Tool management functions for individual machines and networked machines:	See HMI software for CNC controls – MCIS software. ¹⁾ On PCU 50.			N	N	V	V	F	F	N	O	N	O ¹⁾	O ¹⁾
• TDI IFC Tool management, version with network capability	On request. ¹⁾ On PCU 50.			N	N	V	V	F	F	N	O	N	O ¹⁾	O ¹⁾
• TDI Overview Overview of actual tool data, local version	¹⁾ On PCU 50.	6FC5800-0AP34-0YB0 6FC6000-2EC00-0AA8 6FC6000-2EC0. - .AA8	P34	N	N	V	V	F	F	N	O	N	O ¹⁾	O ¹⁾
• TDI Toolhandling Tool handling, local version	¹⁾ On PCU 50.	6FC5800-0AP35-0YB0 6FC6000-2FC00-0AA8 6FC6000-2FC0. - .AA8	P35	N	N	V	V	F	F	N	O	N	O ¹⁾	O ¹⁾
• TDI Planning Tool planning, local version	¹⁾ On PCU 50.	6FC5800-0AP36-0YB0 6FC6000-2GC00-0AA8 6FC6000-2GC0. - .AA8	P36	N	N	V	V	F	F	N	O	N	O ¹⁾	O ¹⁾

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					802D sl - T/M	802D sl - G/N	840 DIE sl	840 DI sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• TDI Statistic Tool statistics, local version	1) On PCU 50.	6FC5800-0AP51-0YB0	P51	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎	
		6FC6000-2KC00-0AA8													
		6FC6000-2KC0. - .AA8													
• TDI Cell		6FC6000-2BF00-0AB0		N	N	V	V	F	F	N					
		6FC6000-2BC00-0AA0													
		6FC6000-2BC0. - .AA0													
• TDI Machine Tool management, local version	1) On PCU 50.	6FC5800-0AP37-0YB0	P37	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎	
		6FC6000-2AC00-0AA8													
		6FC6000-2AC0. - .AA8													
• TDI Toolplan Generation Tool plan generation, local version	1) On PCU 50.	6FC5800-0AP38-0YB0	P38	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎	
		6FC6000-2JC00-0AA8													
		6FC6000-2JC0. - .AA8													
• TDI Ident Connection Interfacing of tool identification systems	1) On PCU 50.	6FC6000-2HF00-0AB0		N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎	
		6FC6000-2HC00-0AA0													
		6FC6000-2HC0. - .AA0													
Communication/data management															
HMI user memory, additional on CF card of NCU	See Basic components. 1) On external CF card on front panel. 2) Not in combination with PCU 50.	6FC5800-0AP12-0YB0	P12	S ₁₎	S ₁₎	N	N	F ₂₎	F ₂₎	O ₂₎	N	O ₂₎	O ₂₎	O ₂₎	
Data on storage medium on rear USB interface of TCU/PCU, e.g. card reader, memory stick	1) Two plant HMIs can be accessed per plant network.			N	N	V	V	S	S	S ₁₎	S ₁₎	S ₁₎	S ₁₎	S ₁₎	
Data on storage medium on rear USB interface of operator panel, e.g. memory stick	1) One is possible per operator panel.			N	N	V	V	S	S	S ₁₎	S ₁₎	S ₁₎	S ₁₎	S ₁₎	
Additional network drive management:															
• Via Ethernet, max. 4	1) With pro version. 2) SW version 2.6 and higher.	6FC5800-0AP01-0YB0	P01	S ₁₎	S ₁₎	V	V	F	F	S ₂₎	S ₂₎	O	O	O	
• Via USB				N	N	V	V	F	F	S	S	S	S	S	
• Via CF card of the PCU				N	N	V	V	F	F	S	S	S	S	S	
RS232C serial interface	1) On PCU 50. 2) On PCU 50/NCU with SW version 2.6 SP1 and higher 3) Precondition: COM01 module			S	S	S	S	O ₃₎	O ₃₎	S ₂₎	S ₁₎	N	S ₁₎	S ₁₎	
I/O interfacing via PROFIBUS DP				S	S	S	S	S	S						
Second interface DP/MPI clock synchronous for NCK available				N	N	N	N								
• NCU 7x0.2								S	S						
• NCU 7x0.3 PN								N	N						
Axis data output via PROFIBUS ADAS	Precondition: Loadable compile cycle.	6FC5800-0AN07-0YB0	N07	N	N	N	N	O	O						
Reading of actual positions correlated with output signal COPA	Precondition: Loadable compile cycle.	6FC5800-0AN61-0YB0	N61	N	N	N	N	O	O						
Data backup on hard disk	1) On PCU 50.			N	N	V	V	F	F	S ₁₎	S	N	S ₁₎	S ₁₎	

			SINUMERIK 802D sl/840Di sl/840D sl																	
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				SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI												
Data backup with Ghost (Backup/Restore) on hard disk/network	1) On PCU 50.			N	N	S	S	F	F	S ₁₎	S	N	S ₁₎	S ₁₎						
Data backup for NCU CF card (Backup/Restore) on memory stick or via network	1) With pro version.			S ₁₎	S ₁₎	N	N	S	S											
DNC – Direct Numeric Control:	See HMI software for CNC controls – MCIS software.																			
• DNC Machine CNC program transfer	1) On PCU 50.	6FC5800-0AP40-0YB0	P40	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
		6FC6000-0AC00-0AA8																		
		6FC6000-0AC0. - .AA8																		
		6FC6000-0AC0. - .AE0																		
		6FC6000-0AC00-0AT7																		
		6FC6000-0AC0. - .AT7																		
• DNC Cell CNC program management		6FC6000-0BF00-0AB0		N	N	O	O	O	O	N										
		6FC6000-0BC00-0AA0																		
		6FC6000-0BC0. - .AA0																		
		6FC6000-0BC0. - .AE0																		
• DNC Plant CNC programm management		6FC6000-0CF00-0AB0		N	N	O	O	O	O	N										
		6FC6000-0CC00-0AA0																		
		6FC6000-0CC0. - .AA0																		
• DNC HMI Additional PC user interface		6FC6000-0DF00-0AB0		N	N	O	O	O	O											
• DNC IFC SINUMERIK CNC program transfer via network on the control	1) On PCU 50.	6FC5800-0AP41-0YB0	P41	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
• DNC IFC Serial Connection for serial CNC	1) On PCU 50.	6FC6000-0FF00-0AB0		N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
• DNC IFC Dialog Option for serial CNC	1) On PCU 50.	6FC6000-0GF00-0AB0		N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
• DNC IFC Filesystem Connection for network-capable CNC machines	1) On PCU 50.	6FC6000-0KF00-0AB0		N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
• DNC Compare CNC program comparison	1) On PCU 50.	6FC6000-0HF00-0AB0		N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
RPC SINUMERIK:	See HMI software for CNC controls – MCIS software.																			
• RPC SINUMERIK Data exchange between CNC and host computer (computer link)	1) On PCU 50.	6FC5800-0AP50-0YB0	P50	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎						
		6FC6000-7AC00-0AA8																		
		6FC6000-7AC0. - .AA8																		
		6FC6000-7AC0. - .AE0																		
ADDM – Automation Data Management:	See HMI software for CNC controls – MCIS software.																			
• ADDM – Data Management Data management system	Precondition: SIMATIC STEP 7	6BQ3030-1AA00-3AD0		N	N	O	O	O	O											
		6BQ3030-1AA10-0AD0																		
		6BQ3030-1AA20-1AC0																		
		6BQ3030-1AA30-3AD0																		
		6BQ3030-1AA70-3AD0																		

			SINUMERIK 802D sl/840Di sl/840D sl											
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		Type (for complete Order-No., see notes)	SINUMERIK Operate							HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI	
• ADDM Agent Client for data backup	¹⁾ On PCU 50.	6FC5800-0AP48-0YB0	P48	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎
Production data evaluation														
MDA – Machine Data Acquisition (machine and production data acquisition):	See HMI software for CNC controls – MCIS software.													
• MDA Cell Machine and production data management		6FC6000-3BF00-0AB0 6FC6000-3BC00-0AA0 6FC6000-3BC0. - .AA0 6FC6000-3BC0. - .AE0		N	N	O	O	O	O	N				
• MDA IFC (interface client) Production data acquisition for network-capable controls	¹⁾ On PCU 50.	6FC5800-0AP43-0YB0	P43	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎
• MDA Machine Production data acquisition, local version	¹⁾ On PCU 50.	6FC5800-0AP42-0YB0 6FC6000-3AC00-0AA8 6FC6000-3AC0. - .AA8 6FC6000-3AC0. - .AE0 6FC6000-3AC00-0AT7 6FC6000-3AC0. - .AT7	P42	N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎
Operation														
Operator panels:				S	S	N	N	N	N	N	N	N	N	N
• SINUMERIK 802D sl, 10,4" color														
Operator panel fronts:														
• OP 019, 19" color	Precondition: PCU 50 with SINUMERIK Operate with SW version 2.7 and higher.	6FC5303-0AF13-0AA0		N	N	N	N	O	O	O	N	N	N	N
• OP 015, 15" color		6FC5203-0AF03-0AA0		N	N	O	O	O	O					
• OP 015A, 15" color		6FC5203-0AF05-0AB0		N	N	O	O	O	O					
• TP 015A, 15" color, touch		6FC5203-0AF08-0AB2		N	N	O	O	O	O					
• OP 012, 12,1" color		6FC5203-0AF02-0AA1		N	N	O	O	O	O					
• OP 010, 10,4" color		6FC5203-0AF00-0AA1		N	N	O	O	O	O					
• OP 010C, 10,4" color		6FC5203-0AF01-0AA0		N	N	O	O	O	O					
• OP 010S, 10,4" color		6FC5203-0AF04-0AA0		N	N	O	O	O	O					
Thin Client Unit for operator panel fronts:														
• TCU		6FC5312-0DA00-0AA1		N	N	O	O	O	O					
Operator panel fronts with integrated TCU:														
• OP 08T, 8" color		6FC5203-0AF04-1BA0		N	N	O	O	O	O					
• OP 015AT, 15" color		6FC5203-0AF05-1AB0		N	N	O	O	O	O					
• TP 015AT, 15" color, touch		6FC5203-0AF08-1AB2		N	N	O	O	O	O					
Additional components for Thin Client:														
• Switch SCALANCE XB005 unmanaged		6GK5005-0BA00-1AB2		N	N	O	O	O	O					
• Switch SCALANCE X005 unmanaged		6GK5005-0BA00-1AA3		N	N	O	O	O	O					
• Switch SCALANCE X108 unmanaged		6GK5108-0BA00-2AA3		N	N	O	O	O	O					
• Switch SCALANCE X208 managed		6GK5208-0BA10-2AA3		N	N	O	O	O	O					

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• Switch SCALANCE X208 PRO managed			6GK5208-0HA00-2AA6		N	N	O	O	O	O					
Industrial PC for operator panel fronts:															
• PCU 50.5-C 1,86 GHz/1 GB, Windows XP ProEmbSys			6FC5210-0DF52-2AA0		N	N	N	N	O	O	O	N	N	N	N
• PCU 50.5-P 2,4 GHz/2 GB, Windows XP ProEmbSys			6FC5210-0DF53-2AA0		N	N	N	N	O	O	O	N	N	N	N
• PCU 50.3-C 1,5 GHz/512 MB, Windows XP ProEmbSys			6FC5210-0DF31-2AB0		N	N	S	S	O	O					
• PCU 50.3-P 2,0 GHz/1 GB, Windows XP ProEmbSys			6FC5210-0DF33-2AB0		N	N	S	S	O	O					
• Memory expansion 512 MB for PCU 50.3			6ES7648-2AG30-0GA0		N	N	O	O	O	O					
• Memory expansion 1 GB for PCU 50.3			6ES7648-2AG40-0GA0		N	N	O	O	O	O					
• Memory expansion 1 GB for PCU 50.5			6ES7648-2AJ40-1KA0		N	N	N	N	O	O					
• Memory expansion 2 GB for PCU 50.5			6ES7648-2AJ50-1KA0		N	N	N	N	O	O					
Mounting hardware for PCU/TCU:															
• Mounting bracket for PCU/TCU behind operator panel front			6FC5248-0AF20-2AA0		N	N	O	O	O	O					
• Upright mounting bracket for PCU in control cabinet			6FC5248-0AF20-1AA0		N	N	O	O	O	O					
• Upright mounting bracket for PCU in control cabinet with/without video link			6FC5248-0AF20-1AA1		N	N	O	O	O	O					
• Flat mounting bracket for PCU in control cabinet			6FC5248-0AF20-0AA0		N	N	O	O	O	O					
Software for:		See HMI software for CNC controls.													
			6FC5860-1YF00-0YA0												
			6FC5860-1YF2.-YA0												
			6FC5860-1YC00-0YA0												
• SINUMERIK PCU 50 for machine operation with SINUMERIK Operate		HMI software for PC/PG separately be ordered. See operator components for CNC controls.	6FC5860-1YC2.-YA0		N	N	N	N	O	O	O				
			6FC5860-1YC2.-YA8												
			6FC5860-1YF00-0YB0												
			6FC5860-1YP00-0YL8												
			6FC5860-2YC00-0YA0												
			6FC5860-2YC2.-YA0												
• PC for machine operation with SINUMERIK Operate			6FC5860-2YC2.-YA8		N	N	N	N	O	O	O				
			6FC5860-2YF00-0YB0												
			6FC5860-2YP00-0YL8												
• SINUMERIK PCU 50 for machine operation with HMI Startup					N	N	S	S	N	N					
			6FC5253-7BX10.-AF0												
			6FC5253-0BX10-0AF0												
			6FC5253-7BX10.-AG0												
• SINUMERIK PCU 50 for machine operation with HMI-Advanced		¹⁾ SW version 1.4 SP1 and higher incl. ShopMill HMI/ShopTurn HMI.	6FC5253-0BX10-0AG1		N	N	S ¹⁾	S ¹⁾	O	O		O			
			6FC5253-0BX10-0AG2												

¹⁾ SW version 1.4 SP1 and higher
incl. ShopMill HMI/ShopTurn HMI.

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Order-No. Type (for complete Order-No., see notes)	Order code	SINUMERIK 802D sl/840Di sl/840D sl						Blank field: Function is not dependent on operating software				
					802D sl - T/M	802D sl - G/N	840 DIE sl	840 Di sl	840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
			6FC5253-7BX10-.AG3												
• PC for machine operation with HMI-Advanced		See HMI software for CNC controls.	6FC5253-7BX40-.AG0 6FC5253-0BX40-0AG1 6FC5253-0BX40-0AG2 6FC5253-7BX40-.AG3		N	N	O	O	O	O		O			
• SINUMERIK PCU 50 for machine operation with ShopMill HMI		Only data carrier without license required. Precondition: CNC software with ShopMill HMI. See Basic components.	6FC5841-3YC .. - .YA8 6FC5841-3XC .. - .YA8		N	N	N	N	V	V					
• SINUMERIK PCU 50 for machine operation with ShopTurn HMI		Only data carrier without license required. Precondition: CNC software with ShopTurn HMI. See Basic components.	6FC5842-3YC .. - .YA8 6FC5842-3XC .. - .YA8		N	N	N	N	V	V					
• SINUMERIK 840Di sl for machine operation with ShopMill HMI or ShopTurn HMI		Only data carrier without license required. See basic components.	6FC5820-3YC .. - .YA8 6FC5820-3XC .. - .YA8		N	N	V	V	N	N					
Connection for:															
• SIMATIC Thin Client Touch 10" and 15" units via Industrial Ethernet		SW version 2.6 SP1 and SIMATIC Version 1.4 and higher.			N	N	N	N	S	S					
• Standard monitor (DVI), VGA via ext. adapter for PCU 50					N	N	S	S	S	S					
• SIMATIC OP 177B/TP 177B/OP 277/TP 277 and MP 277/MP 377		WinCC flexible is required for OA applications.			N	N	S	S	S	S					
• SIMATIC OP 170B/TP 170B and OP 270/TP 270 with 6"/10" display and MP 170/MP 270B/MP 370 with keys/touch		WinCC flexible is required for OA applications.			N	N	S	S	S	S					
Software for:															
• SINUMERIK NCU 710.2/NCU 720.2/NCU 730.2/ NCU 710.3 PN/NCU 720.3 PN/NCU 730.3 PN for machine operation with HMI PRO sl RT		See HMI software for CNC controls. 1) P47 on request.	6FC5800-0AP47-0YB0 6FC5867-3YC00-0YA8 6FC5867-3YC2. - .YA8	P47	N	N	N	N	O	O	O	O ₁₎	N	O	N
• SIMATIC OP 177B/TP 177B/MP 277 operator panel for machine operation with HMI Lite CE		See HMI software for CNC controls.	6FC5263-0PY11-0AG0 6FC5263-.PY11-.AG0 6FC5263-0PY11-0AG1		N	N	N	N	O	O					
Control unit management:															
• Identical display on all OPs with TCU					N	N	S	S	S	S					
- Simultaneous operation interlock					N	N	S	S	S	S					
- Activate/deactivate MCP/MPP					N	N	S	S	S	S					
- Different resolutions, e.g. OP 010/OP 012					N	N	S	S	S	S					
- Up to 2 operator panel fronts, each with one TCU on an NCU 710.2/NCU 710.3 PN					N	N	N	N	S	S					
- Up to 4 operator panel fronts, each with one TCU on an NCU 720.2/NCU 730.2/NCU 720.3 PN/NCU 730.3 PN					N	N	N	N	S	S					

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					802D sl - T/M		802D sl - G/N		840 DiE sl		840 Di sl		840DE sl		840 D sl		Blank field: Function is not dependent on operating software				
																	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Notes (footnotes are applicable line by line)			Type (for complete Order-No., see notes)																		
- Up to 4 operator panel fronts with one TCU each on a PCU 50 plus 1 additional operator panel front directly on the PCU 50			1) A number of proven configurations (see documentation for SINUMERIK 840Di sl).				N	N	S1)	S1)	S	S									
- From 2/4 operator panel fronts, as many operator panel fronts as required due to intelligent suppression			1) SW version 2.x and higher.				N	N	S	S	S1)	S1)	S	S	S	N	N				
• One or several TCUs which can be switched over via several NCUs and PCUs							N	N	S	S	S	S									
• One HMI-Advanced switchable via several NCUs							N	N	N	N	S	S									
• One integrated HMI and one external HMI-Advanced simultaneously on one NCU							N	N	N	N	S	S									
• Operator control without SINUMERIK operator panel			6FC5800-0AP00-0YB0		P00		N	N	N	N	O	O	O		N	N	N				
• Operation via VNC viewer							N	N	S	S	S	S									
Handheld units:																					
• SINUMERIK HT 8 handheld terminal			6FC5403-0AA20-0AA0				N	N	O	O	O	O	O	O	N	N	N				
• SINUMERIK HT 8 (with handwheel)			6FC5403-0AA20-1AA0				N	N	O	O	O	O	O	O	N	N	N				
- Touch pen with holding loop			6FC5348-0AA08-4AA0				N	N	O	O	O	O	O								
- Wall holder for SINUMERIK HT 8			6AV6574-1AF04-4AA0				N	N	O	O	O	O	O								
• SINUMERIK HT 2 handheld terminal			6FC5303-0AA00-2AA0				N	N	O	O	O	O	O								
- Magnetic clamp for SINUMERIK HT 2			6FC5348-0AA08-0AA0				N	N	O	O	O	O	O								
- Holder for SINUMERIK HT 2			6FC5348-0AA08-1AA0				N	N	O	O	O	O	O								
- Slide-in labels for inscribing (three A4 sheets) for SINUMERIK HT 2			6FC5348-0AA08-2AA0				N	N	O	O	O	O	O								
• PN Basic connection module without emergency stop override, with switch, control cabinet mounting for SINUMERIK HT 8/HT 2			6FC5303-0AA01-1AA0				N	N	O	O	O	O	O								
• PN Basic connection box without emergency stop override, for SINUMERIK HT 8/HT 2			6AV6671-5AE01-0AX0				N	N	O	O	O	O	O								
• PN Plus connection box with emergency stop override, for SINUMERIK HT 8/HT 2			6AV6671-5AE11-0AX0				N	N	O	O	O	O	O								
• Handheld unit type B-MPI with coiled connecting cable			6FX2007-1AE04				N	N	O	O	O	O	O								
• Handheld unit type B-MPI with straight connecting cable			6FX2007-1AE14				N	N	O	O	O	O	O								
- Distributor			6FX2006-1BH01				N	N	O	O	O	O	O								
- Handwheel connection module for PROFIBUS			Not required for handwheel connection via machine control panel.				N	N	O	O	O	O	O								
• Mini handheld unit with coiled connecting cable			6FX2007-1AD03				N	N	O	O	O	O	O								
• Mini handheld unit with straight connecting cable			6FX2007-1AD13				N	N	O	O	O	O	O								
- Connection kit for mini handheld unit			6FX2006-1BG03				N	N	O	O	O	O	O								
- Handwheel connection module for PROFIBUS			Not required for handwheel connection via machine control panel.				N	N	O	O	O	O	O								
Machine control panels:																					
• MCP			6FC5603-0AD00-0AA2				O	O	N	N	N	N									
• MCP 802D sl			6FC5303-0AF30-1AA0				O	O	N	N	N	N									
- MCPA modul for MCP 802D sl connection and with ±10 V interface			6FC5312-0DA01-0AA0				O	O	N	N	N	N									
• MCP 310 C PN			6FC5303-0AF23-0AA1				N	N	O	O	O	O									

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					802D sl - T/M	802D sl - G/N	840 DIE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• MCP 310 PN			6FC5303-0AF23-1AA1		N	N	O	O	O	O					
- Actuating element, 22 mm, latching mushroom pushbutton, red			3SB3000-1HA20		N	N	O	O	O	O					
Contact block			3SB3400-0A		N	N	O	O	O	O					
- Cable set for additional control devices			6FC5247-0AA35-0AA0		N	N	O	O	O	O					
- Spindle/rapid traverse override rotary switch 1 x 16G, T = 24, cap, button, pointer, rapid traverse and spindle dials			6FC5247-0AF12-1AA0		N	N	O	O	O	O					
• MCP 483C PN			6FC5303-0AF22-0AA1		N	N	O	O	O	O					
- Cable set for additional control devices			6FC5247-0AA35-0AA0		N	N	O	O	O	O					
• MCP 483 PN			6FC5303-0AF22-1AA1		N	N	O	O	O	O					
• MCP 483			6FC5203-0AF22-1AA2		N	N	O	O	O	O					
- Cable set for additional control devices			6FC5247-0AA35-0AA0		N	N	O	O	O	O					
Push Button Panel with machine control panel functions:															
• MPP 310 IEH with connection for SINUMERIK HT 8			6FC5303-1AF20-8AA1		N	N	O	O	O	O					
• MPP 483			6FC5303-1AF00-0AA1		N	N	O	O	O	O					
• MPP 483 H for handheld unit			6FC5303-1AF00-1AA1		N	N	O	O	O	O					
• MPP 483 A without override			6FC5303-1AF01-0AA1		N	N	O	O	O	O					
• MPP 483 HTC with connection for SINUMERIK HT 8			6FC5303-1AF00-8AA1		N	N	O	O	O	O					
• MPP 483 IE			6FC5303-1AF10-0AA0		N	N	O	O	O	O					
• MPP 483 IEH with connection for SINUMERIK HT 8			6FC5303-1AF10-8AA0		N	N	O	O	O	O					
Electronic Key System EKS			6FC5800-0AP53-0YB0	P53	N	N	O	O	O	O	O	O	N	N	N
• Software option, delivery of a license															
Direct key module			6FC5247-0AF11-0AA0		N	N	O	O	O	O					
• Direct key module mounting kit			6FC5247-0AF30-0AA0		N	N	O	O	O	O					
Connection for electronic handwheels:		¹⁾ Precondition: MCI board extension. ²⁾ Third handwheel can be operated as a contour handwheel.			2	2	2 ₁₎	2 ₁₎	2/3 ₂₎	2/3 ₂₎					
• With 120 × 120 mm (4.72 × 4.72 in) front panel, DC 5 V			6FC9320-5DB01		O	O	O	O	O	O					
• With 76,2 × 76,2 mm (3 × 3 in) front panel, DC 5 V			6FC9320-5DC01		O	O	O	O	O	O					
• With 76,2 × 76,2 mm (3 × 3 in) front panel, DC 24 V, HTL			6FC9320-5DH01		O	O	O	O	O	O					
• Without front panel, without setting wheel, DC 5 V			6FC9320-5DF01		O	O	O	O	O	O					
• Without front panel, with setting panel, DC 5 V			6FC9320-5DM00		O	O	O	O	O	O					
• Portable in housing, 2,5 m (8.2 ft) coiled cable, DC 5 V			6FC9320-5DE02		O	O	O	O	O	O					
Flange socket for portable handwheel			6FC9341-1AQ		O	O	O	O	O	O					
Handwheel connection module for PROFIBUS		Not required for handwheel connection via machine control panel.	6FC5303-0AA02-0AA0		N	N	O	O	O	O					
Cable distributor		Not required for handwheel connection via machine control panel.	6FX2006-1BA02		N	N	O	O	N	N					
Connection for keyboards:															

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					802D sl - T/M	802D sl - G/N	840 DIE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• Full CNC keyboard, vertical format			6FC5303-0DT12-1AA0		O	O	N	N	N	N					
• Full CNC keyboard, horizontal format			6FC5303-0DM13-1AA0		O	O	N	N	N	N					
• KB 483C			6FC5203-0AF20-0AA1		N	N	O	O	O	O					
• KB 310C			6FC5203-0AF21-0AA1		N	N	O	O	O	O					
• KBPC CG US standard PC keyboard			6FC5203-0AC01-3AA0		N	N	O	O	O	O					
- Keyboard tray for standard PC keyboard			6FC5247-0AA40-0AA0		N	N	O	O	O	O					
Connection for memory/storage devices:															
• Floppy disk drive 3,5"/1,44 Mbyte with USB connection			6FC5235-0AA05-1AA2		N	N	O	O	O	O	O	O	O	O	O
• Card reader for CF/SD memory media, with USB connection			6FC5335-0AA00-0AA0		N	N	O	O	O	O	O	O	O	O	O
• Industrial USB Hub 4		With PCU 50.	6AV6671-3AH00-0AX0		N	N	O	O	O	O					
• CompactFlash card 1 GB		¹⁾ Precondition: Card reader.	6FC5313-5AG00-0AA1		O	O	O	O	S	S	O ₁₎	O	O ₁₎	O ₁₎	O ₁₎
• CompactFlash card 8 GB		¹⁾ Precondition: Card reader.	6FC5313-6AG00-0AA0		N	N	O	O	S	S	O ₁₎	O	O ₁₎	O ₁₎	O ₁₎
• SIMATIC USB FlashDrive 2 GB		¹⁾ With version pro.	6ES7648-0DC40-0AA0		O ₁₎	O ₁₎	O	O	O	O	O	O	O	O	O
• SIMATIC USB FlashDrive 8 GB			6ES7648-0DC50-0AA0		N	N	O	O	O	O	O	O	O	O	O
Plain text display of user variables					N	N	V	V	S	S	S	S	S	S	S
Multi-channel display		¹⁾ With OP 019 up to 4 channels.			N	N	V	V	V	V	S ₁₎	S	N	N	N
2D representation of 3D protection areas/ working areas					N	N	V	V	S	S	N	S	S	N	N
Actual-value system for workpiece					N	N	S	S	S	S	S	S	S	N	N
Menu selection via the PLC		Not for two simultaneously active HMIs.			N	N	V	V	F	F	N	S	S	S	S
CNC program messages					S	S	V	V	S	S	S	S	S	S	S
Online help for programming, alarms and machine data (expandable)		¹⁾ With PCU 50.			S	S	V	V	F	F	N	S	N	S ₁₎	S ₁₎
Screen blanking					N	N	S	S	S	S	N	S	S	S	S
Access protection, 8 levels					S	S	S	S	S	S	S	S	S	S	S
Operating software languages:															
• Chinese Simplified, English, French, German, Italian, Spanish		¹⁾ Other languages on request.			S ₁₎	S ₁₎	V	V	F	F	S	S	S	S	S
• Language switchover online					18	18	2	2	2	2	2	2	2	2	2
• Maximum configuration for installed languages		¹⁾ All available languages are supplied on-board. ²⁾ Unrestricted with PCU 50.			₁₎	₁₎	V	V	F	F	8 ₂₎	₂₎	8	8	8
<u>802D sl operating software languages</u> Chinese Traditional, Czech, Dutch, Finnish, Hungarian, Korean, Polish, Portuguese/Brazilian, Romanian, Russian, Swedish, Turkish		Component of SINUMERIK 802D sl Toolbox.			S	S	N	N	N	N					

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
			SINUMERIK Operate	HMI-Advanced							HMI-Embedded	ShopMill HMI	ShopTurn HMI		
<u>Additional languages for operating software</u> HMI-Advanced, HMI-Embedded, ShopMill HMI, ShopTurn HMI on DVD-ROM, without license Chinese Traditional, Czech, Danish, Dutch, Finnish, Hungarian, Japanese, Korean, Polish, Portuguese/Brazilian, Romanian ¹⁾ , Russian, Slovak ¹⁾ , Swedish, Turkish		See Basic components. ¹⁾ For HMI-Advanced only.	6FC5253-7BX10-.XG8		N	N	O	O	O	O	N	O	O	O	O
<u>Additional languages for operating software</u> SINUMERIK Operate on DVD-ROM, without license Chinese Traditional, Czech, Danish, Dutch, Finnish, Hungarian, Japanese, Korean, Polish, Portuguese/Brazilian, Russian, Slovak, Slovene, Swedish, Turkish		See Basic components.	6FC5860-0YC...-YA8		N	N	O	O	O	O	O	N	N	N	N
Additional languages Software option for use of additional languages		¹⁾ Included on the DVD-ROM with additional languages for HMI; please enquire about available SW versions.	6FC5800-0AN00-0YB0	N00	N	N	V	V	F	F	O ₁₎	O ₁₎	O ₁₎	O ₁₎	O ₁₎
Other languages		¹⁾ On request.			¹⁾	¹⁾	V	V	F	F	¹⁾	¹⁾	¹⁾	¹⁾	¹⁾
Monitoring functions															
Working area limitation					S	S	S	S	S	S					
Clamp protection for nibbling					N	S	N	N	N	N					
Limit switch monitoring															
Software and hardware limit switches					S	S	S	S	S	S					
Position monitoring					S	S	S	S	S	S					
Standstill (zero-speed) monitoring					S	S	S	S	S	S					
Clamping monitoring					S	S	S	S	S	S					
2D/3D protection areas					N	N	S	S	S	S					
Contour monitoring					S	S	S	S	S	S					
Contour monitoring using tunnel function			6FC5800-0AM52-0YB0	M52	N	N	O	O	O	O					
Path length evaluation			6FC5800-0AM53-0YB0	M53	N	N	O	O	O	O					
Axis limitation from the PLC					N	N	S	S	S	S					
Spindle speed limitation					S	S	S	S	S	S					
Axis collision protection PROT		Precondition: Loadable compile cycle.	6FC5800-0AN06-0YB0	N06	N	N	N	O	N	O					
Extended stop and retract ES, numerically controlled			6FC5800-0AM61-0YB0	M61	N	N	N	N	O	O					
PROFIBUS tool and process monitoring		Precondition: Loadable compile cycle.	6FC5800-0AM62-0YB0	M62	N	N	N	N	O	O					
Integrated tool monitoring and diagnostics															
• IMD light		Precondition: Loadable compile cycle.	6FC5800-0AN12-0YB0	N12	N	N	N	N	O	O					
• IMD base		Precondition: Loadable compile cycle.	6FC5800-0AN13-0YB0	N13	N	N	N	N	O	O					
• Monitoring for maximum tool speed/ acceleration			6FC5800-0AS08-0YB0	S08	N	N	N	N	O	O					

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
					Type (for complete Order-No., see notes)										
Compensations															
Backlash compensation					S	S	S	S	S	S					
Lead screw error compensation					S	S	S	S	S	S					
Measuring system error compensation					S	S	S	S	S	S					
Feedforward control, velocity-dependent					S	S	S	S	S	S					
Feedforward control, acceleration-dependent			1) SW version 2.6 SP1 and higher.		N	N	N	N	S 1)	S 1)					
Electronic weight counterbalance			Function of SINAMICS S120.		N	N	S	S	S	S					
Temperature compensation					N	N	S	S	S	S					
Quadrant error compensation					N	N	V	V	S	S	S	S	O 1)	O 1)	O 1)
Circularity test			1) Precondition: HMI-Advanced On PCU 50.		N	N	F	F	F	F	S	S	O 1)	O 1)	O 1)
Bidirectional leadscrew error compensation			1) With restricted functionality, see export versions.	6FC5800-0AM54-0YB0	M54	N	N	N	N	O 1)	O				
Sag compensation, multi-dimensional			1) With restricted functionality, see export versions.	6FC5800-0AM55-0YB0	M55	O 1)	O 1)	O 1)	O	O 1)	O				
Space error compensation (SEC) for kinematic transformations			Precondition: Loadable compile cycle.	6FC5800-0AM57-0YB0	M57	N	N	N	N	N	O				
Spatial compensation: VCS A3			Precondition: Loadable compile cycle.	6FC5800-0AN15-0YB0	N15	N	N	N	N	N	O				
Spatial compensation: VCS A5			Precondition: Loadable compile cycle.	6FC5800-0AN16-0YB0	N16	N	N	N	N	N	O				
Spatial compensation: VCS A5 plus			Precondition: Loadable compile cycle.	6FC5800-0AN17-0YB0	N17	N	N	N	N	N	O				
Spatial compensation: VCS Rotary			Precondition: Loadable compile cycle.	6FC5800-0AN31-0YB0	N31	N	N	N	N	N	O				
Vibration extinction VIBX			Precondition: Loadable compile cycle.	6FC5800-0AN11-0YB0	N11	N	N	N	N	N	O				
Magnetic cogging torque compensation COCO			Precondition: Loadable compile cycle.	6FC5800-0AN46-0YB0	-	N	N	N	N	N	O				
PLC															
SIMATIC S7-200 (integrated)					S	S	N	N	N	N					
SIMATIC S7-300 PLC 317F-3PN/DP (integrated)					N	N	N	N							
• NCU 710.3 PN/720.3 PN/NCU 730.3 PN									S	S					
Machining time in µs for bit operations, min.									0,025	0,025					
Machining time in µs for Word operations, min.									0,03	0,03					
SIMATIC S7-300 CPU 317-2 DP (integrated)					N	N	S	S							
• NCU 710.2/NCU 720.2/NCU 730.2									S	S					
Machining time, typically in ms/KI for bit operations			1 KI = 1024 instructions, corresponds to approx. 3 KB.		0,1	0,1	0,03	0,03							
• NCU 710.2/NCU 720.2/NCU 730.2									0,03	0,03					
Machining time, typically in ms/KI for word operations			1 KI = 1024 instructions, corresponds to approx. 3 KB.		0,2	0,2	0,1	0,1							

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		Notes (footnotes are applicable line by line)	Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl											
					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software					
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
• NCU 710.2/NCU 720.2/NCU 730.2										0,1	0,1					
Ladder steps memory configuration	¹⁾ With value version: 4000.				6000 ¹⁾	6000	N	N	N	N						
PLC user memory in KB, incl. basic PLC program	¹⁾ SW version 1.4 and higher.				N	N	S 128	S 128	S 512 ¹⁾	S 512 ¹⁾						
PLC user memory, maximum configuration in KB					N	N	768	768								
• NCU 710.2/NCU 720.2/NCU 730.2									768	768						
• NCU 710.3 PN/NCU 720.3 PN/NCU 730.3 PN									1536	1536						
Expansion of the PLC user memory by 128 KB in each case	D11 to D12 only with SW version 1.4 and higher.	6FC5800-0AD10-0YB0	D11 ... D12		N	N	O	O								
• NCU 710.2/NCU 720.2/NCU 730.2	D11 to D12 only with SW version 1.4 and higher.		D11 ... D12						O	O						
• NCU 710.3 PN/NCU 720.3 PN/NCU 730.3 PN			D11 ... D18						O	O						
SIMATIC STEP 7 programming language:																
• LAD ladder diagram					S	S	O	O	O	O						
• FBD function block diagram					N	N	O	O	O	O						
• STL statement list					N	N	O	O	O	O						
• SCL structured control language	Supplementary package to STEP 7				N	N	O	O	O	O						
• CFC continous function chart	Supplementary package to STEP 7				N	N	O	O	O	O						
• GRAPH	Supplementary package to STEP 7				N	N	O	O	O	O						
PLC programming with HiGraph	Supplementary package to STEP 7				N	N	O	O	O	O						
PLC programming tool, PLC program examples, standard machine data and alarm text editor on Toolbox					S	S	N	N	N	N						
PP 72/48 I/O module	No PROFIBUS certification.	6FC5611-0CA01-0AA1			O	O	O	O	O	O						
• PP 72/48 I/O module, max. number					3	3	125	125	125	125						
• PP 72/48 PN I/O module	¹⁾ Quantity limited by I/Os. Quantity structure of PLC.				O	O	N	N	O ¹⁾	O ¹⁾						
Analog Drive Interface for 4 Axes ADI 4	No PROFIBUS certification.	6FC5211-0BA01-0AA4			O	O	O	O	O	O						
MCI board extension slot version with cable distributor		6FC5222-0AA00-0AA1 6FX2006-1BA02			N	N	O	O	N	N						
Distributed I/O via PROFIBUS DP		See Catalog ST 70 or Siemens Industry Mall for further information.														
• Via integrated interface, data transfer rates up to 12 Mbit/s					S	S	S	S	S	S						
• Distributed DP slaves, max. number					N	N	125	125	125	125						
Distributed I/O via PROFINET		See Catalog ST 70 or Siemens Industry Mall for further information.														
• Via integrated interface, data transfer rates up to 100 Mbit/s					N	N	N	N								
- NCU 710.2/NCU 720.2/NCU 730.2									N	N						
- NCU 710.3 PN/720.3 PN/NCU 730.3 PN									S	S						
• Distributed PN slaves, max. number					N	N	N	N								
- NCU 710.3 PN/720.3 PN/NCU 730.3 PN									256	256						

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• PROFINET CBA					N	N	N	N							
- NCU 710.2/NCU 720.2/NCU 730.2									N	N					
- NCU 710.3 PN/720.3 PN/NCU 730.3 PN									S	S					
• PROFINET I/O controller					N	N	N	N							
- NCU 710.2/NCU 720.2/NCU 730.2									N	N					
- NCU 710.3 PN/720.3 PN/NCU 730.3 PN									S	S					
• PROFINET I/O device					N	N	N	N							
- NCU 710.2/NCU 720.2/NCU 730.2									N	N					
- NCU 710.3 PN/720.3 PN/NCU 730.3 PN									S	S					
Digital inputs, number in bytes	¹⁾ No. = Process image inputs.				216	216	256 ¹⁾	256 ¹⁾	1024 ¹⁾	1024 ¹⁾					
Digital outputs, number in bytes	¹⁾ No. = Process image outputs.				144	144	256 ¹⁾	256 ¹⁾	1024 ¹⁾	1024 ¹⁾					
I/O inputs, number in bytes	¹⁾ Logical address range inputs. ²⁾ 5700 usable, max.				N	N	8192 ¹⁾	8192 ¹⁾	8192 ^{1) 2)}	8192 ^{1) 2)}					
I/O outputs, number in bytes	¹⁾ Logical address range outputs. ²⁾ 5700 usable, max.				N	N	8192 ¹⁾	8192 ¹⁾	8192 ^{1) 2)}	8192 ^{1) 2)}					
Bit memories, number in bytes	¹⁾ With value version: 128.				384 ¹⁾	384	4096	4096							
- NCU 710.2/NCU 720.2/NCU 730.2									4096	4096					
- NCU 710.3PN/720.3 PN/NCU 730.3 PN									4096	4096					
Timers, number	¹⁾ With value and plus versions: 40.				64 ¹⁾	64 ¹⁾	512	512							
- NCU 710.2/NCU 720.2/NCU 730.2									512	512					
- NCU 710.3PN/720.3 PN/NCU 730.3 PN									512	512					
Counter, number	¹⁾ With value and plus versions: 32.				64 ¹⁾	64 ¹⁾	512	512							
- NCU 710.2/NCU 720.2/NCU 730.2									512	512					
- NCU 710.3PN/720.3 PN/NCU 730.3 PN									512	512					
Subroutines					64	64	N	N	N	N					
FB, FC (largest number per type)					N	N	2048	2048	2048	2048					
- NCU 710.2/NCU 720.2/NCU 730.2									2047	2047					
- NCU 710.3PN/720.3 PN/NCU 730.3 PN									7999	7999					
DB, largest number					N	N	2047	2047							
- NCU 710.2/NCU 720.2/NCU 730.2									2047	2047					
- NCU 710.3PN/720.3 PN/NCU 730.3 PN									16000	16000					
Cyclic function block					S	S	S	S	S	S					
Time-controlled function blocks					N	N	S	S	S	S					
Equipment for PLC programming and program test with PG/PC					O	O	O	O	O	O					
User machine data for configuring the PLC user program					S	S	N	N	N	N					
Safety functions															
SINUMERIK Safety Integrated	Preconditions:														
Safety functions for personnel and machine protection	See Basic components.														
• Safe shutdown					N	N	N	N	O	O					

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				802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
Commissioning trace (drive optimization without an additional oscilloscope) Series start-up via serial interface	1) With PCU 50.			N	N	V	V	F	F	N	S	N	S1)	S1)
Series start-up via USB interface with storage medium, e.g. memory stick				S	S	N	N	N	N					
Series start-up of network drive	1) Precondition: Management of network drives.			S	S	V	V	S1)	S1)	S1)	S1)	S1)	S1)	S1)
Series start-up via programming of CF card offline or online	1) Precondition: Additional HMI user memory on CF card of the NCU.			S	S	N	N	S1)	S1)					
STARTER commissioning tool on PC/PG for SINAMICS S120	On Toolbox.			S	S	N	N	N	N					
Commissioning software on PC/PG for SINAMICS S120 (and SIMODRIVE 611 digital)	See HMI software for CNC controls – SinuCom.			N	N	O	O	O	O					
SINUMERIK 840Di/840Di sl Startup (SimoCom U and SinuCom NC)				N	N	S	S	N	N					
SINUMERIK 840Di sl Toolbox on hard disk of the PCU				N	N	S	S	N	N					
SINUMERIK 840Di sl/840D sl Toolbox on CNC system software DVD-ROM				N	N	O	O	O	O					
PLC example library (PLC templates)				S	S	N	N	N	N					
SinuCom Commissioning/service tools for SINUMERIK 840Di sl/840D sl	See HMI software for CNC controls – SinuCom.	6FC5250-0AY00-0AG1 6FC5250-0AY00-0AG0 6FC5250-7AY00-.AG0 6FC5250-0AY00-0AG2 6FC5250-7AY00-.AG3		N	N	S	S	O	O					
• SinuCom NC Dialog-based parameterization of machine data, management of series start-up files, integrated online help for functions, machine data and alarms				N	N	S	S	O	O					
• SinuCom NC Trace Dynamic recording of variables and signals - optimization without additional oscilloscope				N	N	S	S	O	O					
• SinuCom CFS Creation of an image for the CF card in Ext3 format				N	N	N	N	O	O					
• SinuCom ARC Reading, deleting, inserting and changing series start-up files				N	N	N	N	O	O					
SinuCom Update Agent for series production and software upgrades	See HMI software for CNC controls – SinuCom Update Agent.	6FC5862-2YC00-0YA0 6FC5862-2YC...-YA0		N	N	N	N	O	O					
SinuCom UPEXpert				N	N	N	N	O	O					
SinuCom UPSHield				N	N	N	N	O	O					

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					802D sl - T/M	802D sl - G/N	840 DiE sl	840 Di sl	840DE sl	840 D sl	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
SinucCom UPDiff					N	N	N	N	O	O					
SinucCom UPTopo					N	N	N	N	O	O					
SinucCom Protector					N	N	N	N	O	O					
STARTER commissioning tool for SINAMICS and MICROMASTER	¹⁾ On Toolbox. ²⁾ For topology and diagnostics.		6SL3072-0AA00-0AG0		S ₁₎	S ₁₎	O ₂₎	O ₂₎	N	N					
Diagnostic functions															
Alarms and messages					S	S	S	S	S	S					
Action log for diagnostic purposes, can be activated	¹⁾ Logbook for alarms/keys.				S ₁₎	S ₁₎	V	V	S	S	S	S	S	S	S
PLC status	¹⁾ Generally possible via STEP 7 on PC/PG.				S	S	V ₁₎	V ₁₎	S ₁₎	S ₁₎	S	S	S	S	S
LAD display	¹⁾ Generally possible via STEP 7 on PC/PG.				S	S	N ₁₎	N ₁₎	N ₁₎	N ₁₎	N	N	N	N	N
SIMATIC STEP 7 for SINUMERIK hardware for service functions	See HMI software for CNC controls – Tools. ¹⁾ With PCU 50.		6FC5252-0AY00-0AG0 6FC5252-0AY00-0AG1 6FC5252- .AY01- .AG0		N	N	O	O	O ₁₎	O ₁₎					
RCS 802 (Remote Control System) remote diagnostics, snap shot, license for PC	With pro version.		6FC6000-6DA51-0AA0		O	O	N	N	N	N	N	N	N	N	N
• PLC remote diagnostics via modem	Programming tool and modem required. ¹⁾ With pro and plus versions.				S ₁₎	S	N	N	N	N					
• Remote diagnostics via Ethernet on the control	RCS 802 and modem required. For pro version.				S	S	N	N	N	N					
RCS (Remote Control System) remote diagnostics:	See HMI software for CNC controls – MCIS software.														
• RCS Host Remote diagnostics software	¹⁾ With PCU 50.		6FC5800-0AP30-0YB0	P30	N	N	F	F	F	F	O	O	O	O ₁₎	O ₁₎
• RCS Viewer for PC/PG			6FC6000-6DF00-0BB0 6FC6000-6DC00-0BA0 6FC6000-6DC0.-BA0		N	N	N	N	F	F					
• RCS Viewer Embedded for PC/PG			6FC6000-6DF88-8BB0 6FC6000-6DC80-0BA0 6FC6000-6DC8.-BA0		N	N	N	N	F	F					
• RCS Commander for PC/PG Supports basic file transfer between PC/PG and CNC controls	Precondition for modem: RCS host for image transfer ¹⁾ SW version 2.6 and higher for NCU or SINUMERIK Operate for PCU.		6FC5860-7YC00-0YA0 6FC5860-7YC...-YA0		N	N	N	N	F ₁₎	F ₁₎					
Service and maintenance															
ePS Network Services: - Company Account and - Value Account are required for using the services	¹⁾ With PCU 50.		6FC6001-0EE00-0CA1 6FC6001-0EE00-0AF8		N	N	V	V	F	F	N	O	N	O ₁₎	O ₁₎

				SINUMERIK 802D sl/840Di sl/840D sl																
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		Type (for complete Order-No., see notes)											SINUMERIK Operate	HMI- Advanced	HMI- Embedded	ShopMill HMI	ShopTurn HMI			
• ePS Diagnostic Services for diagnostic functions with machine faults and Workflow Services, remote operation and remote monitoring of machine controls	1) 2)	With PCU 50. HMI-Advanced is also required for remote access functionality.	6FC6001-0EE00-0DS0		N	N	V	V	F	F		O 2)	O	O 2)	O 1)	O 1)				
	1)	With PCU 50.	6FC6001-0EE00-0MB0		N	N	V	V	F	F		O	O	O	O 1)	O 1)				
	1) 2)	With PCU 50. HMI-Advanced is also required for remote access functionality.	6FC6001-0EE00-0KP0		N	N	V	V	F	F		O 2)	O	O 2)	O 1)	O 1)				
TPM – Total Productive Maintenance Servicing and maintenance support:		See HMI software for CNC controls – MCIS software.																		
• TPM Machine for SINUMERIK Maintenance management	1)	With PCU 50.	6FC5800-0AP32-0YB0 6FC6000-1AC00-0AA8 6FC6000-1AC0.-AA8 6FC6000-1AC0.-AF0	P32	N	N	F	F	F	F		N	O	N	O 1)	O 1)				
			6FC6000-1BF00-0AB0 6FC6000-1BC00-0AA0 6FC6000-1BC0.-AA0		N	N	F	F	F	F		N	O	N	N	N				
• TPM Cell Maintenance management on PC																				
• TPM IFC for SINUMERIK Preventive maintenance for network-capable controls	1)	With PCU 50.	6FC5800-0AP46-0YB0	P46	N	N	F	F	F	F		N	O	N	O 1)	O 1)				
• TPM HMI Additional user interface for Windows-based PC			6FC6000-1DF00-0AB0		N	N	F	F	F	F		N	O	N	N	N				
• TPM demo version			6FC6000-1AC00-0AT7		N	N	F	F	F	F		N	O	N	N	N				