

S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible		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
<b>Control structure and configuration</b>														
SINUMERIK 840D sl:														
• CNC 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	
• 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	
• Maximum configuration NX			N	N	N	N	3	3						
NCU 710.2/NCU 710.3 PN			N	N	N	N	5	5						
• Maximum configuration NCU+NX+CU3.. <sup>1)</sup>	<sup>1)</sup> In preparation.		N	N	N	N	9	9						
NCU 710.2/NCU 710.3 PN			N	N	N	N	13	13						
NCU 720.2/NCU 720.3 PN			N	N	N	N	15	15						
NCU 730.2/NCU 730.3 PN			N	N	N	N	15	15						
• Maximum configuration CU3.. <sup>1)</sup>	<sup>1)</sup> In preparation.		N	N	N	N	9 - x <sup>1)</sup>	9 - x <sup>1)</sup>						
NCU 710.2/NCU 710.3 PN	<sup>1)</sup> x = no. of NX+1		N	N	N	N	13 - x <sup>1)</sup>	13 - x <sup>1)</sup>						
NCU 720.2/NCU 720.3 PN	<sup>1)</sup> x = no. of NX+1		N	N	N	N	15 - x <sup>1)</sup>	15 - x <sup>1)</sup>						
NCU 730.2/NCU 730.3 PN	<sup>1)</sup> x = no. of NX+1		N	N	N	N	15 - x <sup>1)</sup>	15 - x <sup>1)</sup>						
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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				802D sl - T/M	802D sl - G/N	840 DIE sl		840DE sl		SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
						840 DI sl	840 D sl	840 D sl	840 D sl					
• CNC software 6-3/31-5 with HMI-Embedded, export version, software update service, without license		6FC5840-3YP00-0YL8		N	N	N	N	O	N	N		S		
• CNC software 6-3/31-5 with HMI-Embedded, software update service, without license		6FC5840-3XP00-0YL8		N	N	N	N	N	O	N		S		
• CNC software 6-3 and ShopMill HMI, export version, on CF card, with license	See Basic components.	6FC5841-1YG...YA0		N	N	N	N	O	N	N		S	S	
• CNC software 6-3 and ShopMill HMI, on CF card, with license	See Basic components.	6FC5841-1XG...YA0		N	N	N	N	N	O	N		S	S	
• CNC software 31-5 and ShopMill HMI, export version, on CF card, with license	See Basic components.	6FC5841-3YG...YA0		N	N	N	N	O	N	N		S	S	
• CNC software 31-5 and ShopMill HMI, on CF card, with license	See Basic components.	6FC5841-3XG...YA0		N	N	N	N	N	O	N		S	S	
• CNC software 6-3/31-5 and ShopMill HMI, export version, on DVD-ROM, without license	See Basic components.	6FC5841-3YC...YA8		N	N	N	N	O	N	N		S	S	
• CNC software 6-3 and ShopMill HMI, export version, license		6FC5841-1YF00-0YB0		N	N	N	N	O	N	N		S	S	
• CNC software 31-5 and ShopMill HMI, export version, license		6FC5841-3YF00-0YB0		N	N	N	N	O	N	N		S	S	
• CNC software 6-3/31-5 and ShopMill HMI, on DVD-ROM, without license	See Basic components.	6FC5841-3XC...YA8		N	N	N	N	N	O	N		S	S	
• CNC software 6-3 and ShopMill HMI, license		6FC5841-1XF00-0YB0		N	N	N	N	N	O	N		S	S	
• CNC software 31-5 and ShopMill HMI, license		6FC5841-3XF00-0YB0		N	N	N	N	N	O	N		S	S	
• CNC software 6-3/31-5 and ShopMill HMI, export version, software update service, without license		6FC5841-3YP00-0YL8		N	N	N	N	O	N	N		S	S	
• CNC software 6-3/31-5 and ShopMill HMI, software update service, without license		6FC5841-3XP00-0YL8		N	N	N	N	N	O	N		S	S	
• CNC software 6-3 and ShopTurn HMI, export version, on CF card, with license	See Basic components.	6FC5842-1YG...YA0		N	N	N	N	O	N	N		S		S
• CNC software 6-3 and ShopTurn HMI, on CF card, with license	See Basic components.	6FC5842-1XG...YA0		N	N	N	N	N	O	N		S		S
• CNC software 31-5 and ShopTurn HMI, export version, on CF card, with license	See Basic components.	6FC5842-3YG...YA0		N	N	N	N	O	N	N		S		S
• CNC software 31-5 and ShopTurn HMI, on CF card, with license	See Basic components.	6FC5842-3XG...YA0		N	N	N	N	N	O	N		S		S
• CNC software 6-3/31-5 and ShopTurn HMI, export version, on DVD-ROM, without license	See Basic components.	6FC5842-3YC...YA8		N	N	N	N	O	N	N		S		S
• CNC software 6-3 and ShopTurn HMI, export version, license		6FC5842-1YF00-0YB0		N	N	N	N	O	N	N		S		S
• CNC software 31-5 and ShopTurn HMI, export version, license		6FC5842-3YF00-0YB0		N	N	N	N	O	N	N		S		S
• CNC software 6-3/31-5 and ShopTurn HMI, on DVD-ROM, without license	See Basic components.	6FC5842-3XC...YA8		N	N	N	N	N	O	N		S		S
• CNC software 6-3 and ShopTurn HMI, license		6FC5842-1XF00-0YB0		N	N	N	N	N	O	N		S		S
• CNC software 31-5 and ShopTurn HMI, license		6FC5842-3XF00-0YB0		N	N	N	N	N	O	N		S		S
• CNC software 6-3/31-5 and ShopTurn HMI, export version software update service, without license		6FC5842-3YP00-0YL8		N	N	N	N	O	N	N		S		S
• CNC software 6-3/31-5 and ShopTurn HMI, software update service, without license		6FC5842-3XP00-0YL8		N	N	N	N	N	O	N		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:														

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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
• CNC software 6-3 with SINUMERIK Operate, export version, on CF card, with license	See Basic components.	6FC5850-1YG...-YA0		N	N	N	N	O	N	S		N	N	N
• CNC software 31-5 with SINUMERIK Operate, export version, on CF card, with license	See Basic components.	6FC5850-3YG...-YA0		N	N	N	N	O	N	S		N	N	N
• CNC software 6-3 with SINUMERIK Operate, on CF card, with license	See Basic components.	6FC5850-1XG...-YA0		N	N	N	N	N	O	S		N	N	N
• CNC software 31-5 with SINUMERIK Operate, on CF card, with license	See Basic components.	6FC5850-3XG...-YA0		N	N	N	N	N	O	S		N	N	N
• CNC software 6-3/31-5 with SINUMERIK Operate, export version, on DVD-ROM, without license	See Basic components.	6FC5850-3YC...-YA8		N	N	N	N	O	N	S		N	N	N
• CNC software 6-3 with SINUMERIK Operate, export version, license		6FC5850-1YF00-0YB0		N	N	N	N	O	N	S		N	N	N
• CNC software 31-5 with SINUMERIK Operate, export version, license		6FC5850-3YF00-0YB0		N	N	N	N	O	N	S		N	N	N
• CNC software 6-3/31-5 with SINUMERIK Operate, on DVD-ROM, without license	See Basic components.	6FC5850-3XC...-YA8		N	N	N	N	N	O	S		N	N	N
• CNC software 6-3 with SINUMERIK Operate, license		6FC5850-1XF00-0YB0		N	N	N	N	N	O	S		N	N	N
• CNC software 31-5 with SINUMERIK Operate, license		6FC5850-3XF00-0YB0		N	N	N	N	N	O	S		N	N	N
• CNC software 6-3/31-5 with SINUMERIK Operate, export version, software update service, without license		6FC5850-3YP00-0YL8		N	N	N	N	O	N	S		N	N	N
• CNC software 6-3/31-5 with SINUMERIK Operate, software update service, without license		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 + MCI2 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 + MCI2 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 + MCI2 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 + MCI2 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 + MCI2 board, Windows XP ProEmbSys)		6FC5220-0AA31-2AB0		N	N	O	O	N	N	N	O	N	V	V

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				802D sl - T/M	802D sl - G/N	840 DIE sl		840DE sl		SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
						840 DI sl	840 D sl	840 DE sl	840 D sl					
• 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	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	N	N
• Machining channel, each additional		Example: 4 additional machining channels: 6FC5800-0AC10-0YB0-Z C14	6FC5800-0AC10-0YB0	C11 ... C19	N	N	O	O	O	O	O	O	N	N
CNC user memory (buffered) for programs and OEM cycles in MB		<sup>1)</sup> With value version: 512 KB. With plus version: 1 MB.			S	S	S	S	S					
					3 <sup>1)</sup>	3 <sup>1)</sup>	5	5	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		<sup>1)</sup> With value version: 512 KB. With plus version: 1 MB. <sup>2)</sup> For NCU 710.2/ NCU 710.3 PN max. 9 MB.			3 <sup>1)</sup>	3 <sup>1)</sup>	5	5	15 <sup>2)</sup>	15 <sup>2)</sup>				
HMI user memory, additional on CF card of NCU		<sup>1)</sup> On external CF card on the front. <sup>2)</sup> On CF card of NCU, not with HMI on PCU 50.	6FC5800-0AP12-0YB0	P12	S <sub>1)</sub>	S <sub>1)</sub>	N	N	F <sub>2)</sub>	F <sub>2)</sub>	O <sub>2)</sub>	N	O	O <sub>2)</sub>

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					4/1 3/2 <sup>1)</sup>	4/1 3/2	S 3	S 3	S 3	S 3					
Axes/spindles or positioning axes/auxiliary spindle:	<sup>1)</sup> With value version: 3/1.				4/1 3/2 <sup>1)</sup>	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	<sup>1)</sup> With value version: 3/1. <sup>2)</sup> Display: 3 geometry axes + 2 additional axes + 1 spindle. <sup>3)</sup> Display: 3 geometry axes + 2 additional axes + 3 spindle.				4/1 3/2 <sup>1)</sup>	4/1 3/2	20	20			31	31	31	12 <sup>2)</sup>	12 <sup>3)</sup>
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	<sup>1)</sup> With value version: 1.				2 <sup>1)</sup>	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	<sup>1)</sup> With value version: 3/1.				4/1 3/2 <sup>1)</sup>	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	<sup>1)</sup> With value version: 3/1.				4/1 3/2 <sup>1)</sup>	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	O					
Positioning axis/auxiliary spindle, each additional		6FC5800-0AB00-0YB0	B01 ... B26		N	N	O	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	O					
PLC-controlled axis	<sup>1)</sup> With plus and pro versions.				1 <sup>1)</sup>	1 <sup>1)</sup>	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	<sup>1)</sup> No CNC options required.										50	50	N	N	N
NCU 710.2/NCU 710.3 PN	<sup>1)</sup> Max. 15 minus numerically controlled axes/spindles.				N	N	N	N	9...15	9...15					
NCU 720.2/NCU 720.3 PN	<sup>1)</sup> Max. 40 minus numerically controlled axes/spindles.				N	N	N	N	9...40	9...40					
NCU 730.2/NCU 730.3 PN	<sup>1)</sup> Max. 50 minus numerically controlled axes/spindles.				N	N	N	N	19...50	19...50					

Drives

		Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl						Blank field: Function is not dependent on operating software				
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)	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
		SINAMICS S120 Combi												
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)		<sup>1)</sup> With NCU 7x0.2	6SL3040-0MA00-0A..		N	N	S	S	O <sup>1)</sup>	O <sup>1)</sup>				
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				

		SINUMERIK 802D sl/840Di sl/840D sl						Blank field: Function is not dependent on operating software								
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	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	HMI-	HMI-	ShopMill	ShopTurn	
											Operate	Advanced	Embedded	HMI	HMI	
• SINAMICS S120 SMC10	See SINAMICS S120 drive system. <sup>1)</sup> No SINUMERIK Safety Integrated.	6SL3055-0AA00-5AA3							<sup>1)</sup>	<sup>1)</sup>						
• SINAMICS S120 SMC20	See SINAMICS S120 drive system.	6SL3055-0AA00-5BA3														
• SINAMICS S120 SMC30	See SINAMICS S120 drive system. <sup>1)</sup> No SINUMERIK Safety Integrated.	6SL3055-0AA00-5CA3							<sup>1)</sup>	<sup>1)</sup>						
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	See SINAMICS S120 drive system. <sup>1)</sup> SW version 1.5 HF5, SW version 2.5 HF2 and higher.	6SL3055-0AA00-3P..			N	N	N	N	<sup>1)</sup>	<sup>1)</sup>						
• SINAMICS S120 TM15	See SINAMICS S120 drive system.	6SL3055-0AA00-3FA.			N	N	O	O	O	O						
• SINAMICS S120 TM17	See SINAMICS S120 drive system. <sup>1)</sup> SW version 2.6 SP1 HF2 and higher plus option N51.	6SL3055-0AA00-3HA.			N	N	N	N	N	<sup>1)</sup>						
• 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	O						

<b>S</b> = Standard (Basic version) <b>O</b> = Option <b>F</b> = Function is dependent on operating software <b>V</b> = Precondition: HMI-Advanced operating software <b>N</b> = 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		840DE sl		SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
							840 Di sl	840 D sl	840DE sl	840 D sl					
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.. 6SL3121-1TE31-3A.. 6SL3121-1TE32-0A.. 6SL3121-2TE13-0A.. 6SL3121-2TE15-0A.. 6SL3121-2TE21-0A.. 6SL3121-2TE21-8A..		O	O	O	O	O	O						
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.. 6SL3126-1TE28-5A.. 6SL3126-1TE31-3A.. 6SL3126-1TE32-0A.. 6SL3126-2TE13-0A.. 6SL3126-2TE15-0A.. 6SL3126-2TE21-0A.. 6SL3126-2TE21-8A..		N	N	O	O	O	O						
SINAMICS S120 booksize format Active Line Modules, internal air cooling	See SINAMICS S120 drive system.	6SL3130-7TE21-6A.. 6SL3130-7TE23-6A.. 6SL3130-7TE25-5A.. 6SL3130-7TE28-0A.. 6SL3130-7TE31-2A..		O	O	O	O	O	O						
SINAMICS S120 booksize format Active Line Modules, external air cooling	See SINAMICS S120 drive system.	6SL3131-7TE21-6A.. 6SL3131-7TE23-6A.. 6SL3131-7TE25-5A.. 6SL3131-7TE28-0A.. 6SL3131-7TE31-2A..		O	O	O	O	O	O						
SINAMICS S120 booksize format Active Line Modules, cold plate cooling	See SINAMICS S120 drive system.	6SL3136-7TE21-6A.. 6SL3136-7TE23-6A.. 6SL3136-7TE25-5A.. 6SL3136-7TE28-0A.. 6SL3136-7TE31-2A..		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	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. <sup>1)</sup> 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 <sup>1)</sup>	O <sup>1)</sup>						
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. <sup>1)</sup> 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 <sup>1)</sup>	O <sup>1)</sup>						
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						

		Order-No.	Order code	SINUMERIK 802D sl/840Di sl/840D sl						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	
<p>S = Standard (Basic version) O = Option F = Function is dependent on operating software V = Precondition: HMI-Advanced operating software N = Not possible</p> <p>SINAMICS S120 blocksize format Power Modules 1 AC 230 V, internal air cooling</p>	<p>Notes (footnotes are applicable line by line)</p> <p>No SINUMERIK Safety Integrated.</p>	6SL3210-1SB10-9UA0		N	N	O	O	O	O						
		6SL3210-1SB12-3UA0													
		6SL3210-1SB13-9UA0													
		6SL3210-1SB10-9AA0													
		6SL3210-1SB12-3AA0													
		6SL3210-1SB13-9AA0													
<p>SINAMICS S120 blocksize format Power Modules 400 V 3 AC, internal air cooling</p>	<p>No SINUMERIK Safety Integrated.</p>	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				N	N	O	O	O	O				
		6SL3210-1SE11-3AA0													
		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															

		SINUMERIK 802D sl/840Di sl/840D sl						Blank field: Function is not dependent on operating software							
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	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
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					



	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		840DE sl		SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
						840 Di sl	840 D sl	840 D sl	840 D sl						
Dynamic energy management (DC link voltage management)				S	S	S	S	S	S						
Runtime meter				N	N	S	S	S	S						
I <sup>2</sup> t 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						
<b>Maximum configuration (valid for standard PROFIBUS DP cycle)</b>															
• 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						
<b>Maximum number</b>															
• Drive data sets								32	32						
• Motor data sets								8	8						
• Encoder data sets								8	8						
<b>Axis functions</b>															
Traversing range ± 9 decades				S	S	S	S	S	S						
Rotary axis, continuously turning	<sup>1)</sup> With plus and pro versions.			S <sup>1)</sup>	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						

		SINUMERIK 802D sl/840Di sl/840D sl								Blank field: Function is not dependent on operating software					
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	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
Separate path feed for corners and chamfers					S	S	S	S	S	S					
Travel to fixed stop	<sup>1)</sup> With plus and pro versions.				S <sup>1)</sup>	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:	<sup>1)</sup> Position switching signals only.	6FC5800-0AM07-0YB0	M07		S <sup>1)</sup>	S <sup>1)</sup>	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					
<b>Spindle functions</b>															
Analog spindle speed	<sup>1)</sup> With MCPA. <sup>2)</sup> With ADI 4.				S <sup>1)</sup>	S <sup>1)</sup>	S <sup>2)</sup>	S <sup>2)</sup>	N	N					
Digital spindle speed					S	S	S	S	S	S					
Spindle speed, max. programmable value range: 10 <sup>6</sup> ... 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)	<sup>1)</sup> With plus and pro versions.				S	S	S	S	S	S					
Changeover to axis mode	<sup>1)</sup> With plus and pro versions.				S	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					
<b>Interpolations</b>															
Floating point accuracy (80 bit floating point accuracy)					S	S	S	S	S	S					
Linear interpolating axes	<sup>1)</sup> With value version: 3.				S	S	S	S	S	S					
• Maximum	<sup>1)</sup> With value version: 3.				4 <sup>1)</sup>	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	<sup>1)</sup> With value version: 2D+1.				2D+2 <sup>1)</sup>	2D+2	2D+2	2D+6	2D+2	2D+6					
Universal interpolator NURBS (non uniform rational B-splines)					N	N	S	S	S	S					
Continuous-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

		SINUMERIK 802D sl/840Di sl/840D sl												
	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				
										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	
<b>Couplings</b>														
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	<sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM20-0YB0	M20	N	N	O <sub>1)</sub>	O	O <sub>1)</sub>	O					
Electronic gear EG	<sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM22-0YB0	M22	N	N	O <sub>1)</sub>	O	O <sub>1)</sub>	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 • 1 x simple synchronous spindle coupling ratio 1:1		6FC5800-0AM75-0YB0	M75	N	N	N	N	O	O	O	O	O	N	N
Generic coupling Basic, CP-Basic • 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	<sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM72-0YB0	M72	N	N	O <sub>1)</sub>	O	O <sub>1)</sub>	O	O	O	O	N	N
Generic coupling Comfort, CP-Comfort		6FC5800-0AM73-0YB0	M73											

		SINUMERIK 802D sl/840Di sl/840D sl													
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							840 DI sl	840 D sl	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)	<sup>1)</sup> With restricted functionality, see export versions.				N	N	O <sub>1)</sub>	O	O <sub>1)</sub>	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)	<sup>1)</sup> With restricted functionality, see export versions. <sup>2)</sup> Precondition: NCU 720.2/NCU 730.2.				N	N	O <sub>1)</sub>	O	O <sub>1)2)</sub>	O <sub>2)</sub>	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	
Transformation redundant axes on workpiece RDCC	Precondition: Loadable compile cycle.	6FC5800-0AN62-0YB0	N26		N	N	N	N	N	O	O		N	N	
<b>Transformations</b>															
Cartesian point-to-point (PTP) travel					N	S	S	S	S	S					
TRANSMIT and cylinder surface transformation	<sup>1)</sup> With plus and pro versions.	6FC5800-0AM27-0YB0	M27		S <sub>1)</sub>	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					



		SINUMERIK 802D sl/840Di sl/840D sl														
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											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
<b>Measuring functions/measuring cycles</b>																
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	O	O
Measure kinematics (determine transformation data of rotary axis)		6FC5800-0AP18-0YB0	P18		N	N	N	N	O	O	O	O	O	O	O	O
<b>Technologies</b>																
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 MDynamcis 3 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 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	N	N

<p><b>S</b> = Standard (Basic version)  <b>O</b> = Option  <b>F</b> = Function is dependent on operating software  <b>V</b> = Precondition: HMI-Advanced operating software  <b>N</b> = Not possible</p>		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		840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
							840 Di sl	840 Di sl								
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		<sup>1)</sup> SW version 2.6 and higher.	6FC5800-0AS33-0YB0	S33	N	N	N	N	N	O <sup>1)</sup>	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						
Handling package <sup>1)</sup> Contains the options: 3 additional axes, 3 additional channels, transformation handling <sup>2)</sup> , synchronized actions level 2		<sup>1)</sup> SW version 2.6 and higher. Tool offsets and spindles are not possible. <sup>2)</sup> 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						
<b>Motion-synchronized actions</b>																
High-speed CNC inputs/outputs																
• Digital inputs on-board		<sup>1)</sup> Precondition: MCPA. <sup>2)</sup> Precondition: MCI board extension.			8 <sup>1)</sup>	8 <sup>1)</sup>	4 <sup>2)</sup>	4 <sup>2)</sup>	4	4						
• Digital inputs or outputs on-board		<sup>1)</sup> Precondition: MCPA. <sup>2)</sup> Precondition: MCI board extension.			8 <sup>1)</sup>	8 <sup>1)</sup>	4 <sup>2)</sup>	4 <sup>2)</sup>	4	4						

		SINUMERIK 802D sl/840Di sl/840D sl								Blank field: Function is not dependent on operating software					
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• 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. <sup>1)</sup> With restricted functionality, see export versions.				N	N	S <sup>1)</sup>	S	S <sup>1)</sup>	S					
Synchronized actions stage 2	<sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM36-0YB0	M36		N	N	O <sup>1)</sup>	O	O <sup>1)</sup>	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)	<sup>1)</sup> Precondition: SIMATIC DP ET 200 analog module.				N	N	S <sup>1)</sup>	S <sup>1)</sup>	S	S					
Analog output, path-velocity-dependent Laser power control	<sup>1)</sup> Precondition: SIMATIC DP ET 200 analog module.	6FC5800-0AM37-0YB0	M37		N	N	O <sup>1)</sup>	O <sup>1)</sup>	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. <sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM40-0YB0	M40		N	N	O <sup>1)</sup>	O	O <sup>1)</sup>	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					
Asynchronous subroutines ASUB: • Interrupt routines with fast retraction from the contour	High-speed CNC inputs/outputs required.	6FC5800-0AM42-0YB0	M42		N	N	S	S	S	S					
Cross-mode actions (ASUBs and synchronized actions in all operating modes)		6FC5800-0AM43-0YB0	M43		N	N	O	O	O	O					
<b>Open Architecture</b>															
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

		SINUMERIK 802D sl/840Di sl/840D sl													
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										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI	
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					
SINUMERIK Operate runtime license OA .net		6FC5800-0AP66-0YB0	P66	N	N	N	N	O	O	O	O	N	N	N	N
SINUMERIK Operate runtime license OA Easy Screen (SINUMERIK Integrate Run MyScreens)	<sup>1)</sup> Free screens: 5	6FC5800-0AP64-0YB0	P64	N	N	O	O	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	N	N	N
HMI-Advanced User interface expansion • Free screens				N	N	F	F	F	F	F	F	N	S <sub>20</sub>	S <sub>20</sub>	S <sub>20</sub>
SINUMERIK HMI programming package (OEM contract required)	See HMI software for CNC controls. <sup>1)</sup> Precondition: PCU 50	6FC5253-0BX20-0AG0 6FC5253-. BX20-.AG0 6FC5253-0BX20-0AG1 6FC5253-0BX20-0AG2 6FC5253-.BX20-.AG3		N	N	O	O	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	N	O	N	N
SINUMERIK HMI configuring package WinCC flexible 2008 (OEM contract required)	See HMI software for CNC controls. <sup>1)</sup> Precondition: PCU 50	6FC5253-0CX25-0AG0 6FC5253-.CX25-.AG0 6FC5253-0CX25-0AG1 6FC5253-0CX25-0AG2 6FC5253-.CX25-.AG3		N	N	O	O	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	N	O	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	N	O	O	O
NCK Open Architecture (SINUMERIK Integrate Create MyCC)	SINUMERIK Integrate, see NC 62. OEM contract required.			N	N	N	N	N	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>				
OA package NCK (Create MyCC)	<sup>1)</sup> On request.			N	N	N	N	N	O	O	O				
COA package NCK (Create MyCCI) • Based on Customized Interface	COA contract required.	6FC5863-1YP00-0YB8		N	N	N	N	N	O	O	O				
SINUMERIK NCK Runtime OA (Run MyCC)	Precondition: Create MyCC <sup>1)</sup> On request.	6FC5800-0AM04-0YB0	M04	N	N	N	O <sup>1)</sup>	N	O	O	O				
SINUMERIK Integrate Run MyCCI /IMD	Precondition: Create MyCCI <sup>1)</sup> On request.	6FC5800-0AN13-0YB0	N13	N	N	N	O <sup>1)</sup>	N	O	O	O				
SINUMERIK Integrate Run MyCCI /VCI	Precondition: Create MyCCI <sup>1)</sup> On request.	6FC5800-0AN74-0YB0	N74	N	N	N	O <sup>1)</sup>	N	O	O	O				
SINUMERIK Integrate Run MyCCI /COOC	Precondition: Create MyCCI <sup>1)</sup> On request.	6FC5800-0AM67-0YB0	M67	N	N	N	O <sup>1)</sup>	N	O	O	O				
<b>CNC programming language</b>															
Programming language (DIN 66025 and high-level language expansion)				S	S	S	S	S	S	S	S				
Main program call from main program and subroutine				S	S	S	S	S	S	S	S				
Subroutine levels/interrupt routines, max.	<sup>1)</sup> SW version 1.5/2.5 and higher.			8/0	8/0	11/4	11/4	16/2 <sup>1)</sup>	16/2 <sup>1)</sup>	16/2 <sup>1)</sup>	16/2 <sup>1)</sup>				
Number of subroutine passes ≤ 9999				S	S	S	S	S	S	S	S				
Number of levels for skip (/0 to /...)				1	1	8	8	8	8	8	8				
Polar coordinates				S	S	S	S	S	S	S	S				
1/2/3-point contours	<sup>1)</sup> With value version.			S <sup>1)</sup>	N	S	S	S	S	S	S				
Dimensions metric/inch, changeover manually or via program				S	S	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
Inverse time feedrate				S	S	S	S	S	S					
Auxiliary function output:				S	S	S	S	S	S					
• 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 $\pm 3.4028 \text{ ex } 38$ (display: $\pm 999999999.9999$ ) INT $-2^{31} \dots 2^{31} - 1$	<sup>1)</sup> With plus and pro versions.			S <sup>1)</sup>	S	S	S	S	S					
High-level CNC language with:				N	N	S	S	S	S					
• User variables, configurable				S	S	S	S	S	S					
• Predefined user variables (arithmetic parameters)				N	N	S	S	S	S					
• Predefined user variables (arithmetic parameters), configurable				S <sup>1)</sup>	S <sup>1)</sup>	S	S	S	S					
• Read/write system variables	<sup>1)</sup> Restricted scope.			S	S	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:				S	S	S	S	S	S					
• 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	<sup>1)</sup> SW version 1.5/2.5 and higher in basic version.	<b>6FC5800-0AM00-0YB0</b>	<b>M00</b>	N	N	O	O	O <sup>1)</sup>	O <sup>1)</sup>					
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					

		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	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	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI							
• On additional plug-in CF card	<sup>1)</sup> On the front. <sup>2)</sup> With PCU 50.				S <sub>1)</sub>	S <sub>1)</sub>	V	V	V	V	V	V	V	V	V	V					
• On integral hard disk of PCU 50.					N	N	S	S	F	F	F	F	F	F	F	F	N	S	N	S	S
• On USB storage medium, e.g. floppy disk drive, memory stick					N	N	O	O	O	O	O	O	O	O	O	O	S	S	S	S	S
• On network drive	<sup>1)</sup> With version pro. <sup>2)</sup> Precondition: Manging of network drives. <sup>3)</sup> SW version 2.6 and higher in basic version.				S <sub>1)</sub>	S <sub>1)</sub>	F	F	S	S	S	S	S	S	S	S	O <sub>2)</sub>	O <sub>2)</sub>	O <sub>2)</sub>	O <sub>2)</sub>	O <sub>2)</sub>
• Templates for workpieces, programs and INI files					N	N	V	V	F	F	F	F	F	F	F	F	N	S	N	N	N
• Job lists					N	N	V	V	F	F	F	F	F	F	F	F	N	S	N	N	N
Number of basic frames, max.					1	1	V	V	16	16	16	16	16	16	16	16	16	16	16	1	1
Number of settable offsets, max.					6	6	V	V	100	100	100	100	100	100	100	100	100	100	100	100	100
Work offsets, programmable (frames)					N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Scratching, determining work offset					S	S	V	V	F	F	F	F	F	F	F	F	N	S	S	S	S
Work offsets, external (PLC)					N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Global and local user data					N	N	V	V	S	S	S	S	S	S	S	S	S	S	S	S	S
Global program user data					N	N	V	V	S	S	S	S	S	S	S	S	S	S	S	S	S
Display system variables (also via online configurable display) and log them	<sup>1)</sup> With PCU 50.				N	N	V	V	F	F	F	F	F	F	F	F	S	S	N	S <sub>1)</sub>	S <sub>1)</sub>
<b>Programming support</b>																					
Program editor:																					
• Text editor with editing functions: Selecting, copying, deleting					S	S	S	S	F	F	F	F	F	F	F	F	S	S	S	S	S
• Dual editor					N	N	V	V	F	F	F	F	F	F	F	F	S	S	S	N	N
• Multi-editor, max. 4	Precondition: OP 019.				N	N	N	N	O	O	O	O	O	O	O	O	S	N	N	N	N
• Write protection for lines					N	N	V	V	F	F	F	F	F	F	F	F	S	S	S	S	S
• Suppression of lines in the display					N	N	V	V	F	F	F	F	F	F	F	F	S	S	S	S	S
• Machining step programming		<b>6FC5800-0AP04-0YB0</b>	<b>P04</b>		N	N	F	F	F	F	F	F	F	F	F	F	N	N	N	O	O
Multiple clamping of various workpieces	<sup>1)</sup> Precondition: P04 <sup>2)</sup> Precondition: P17	<b>6FC5800-0AP14-0YB0</b>	<b>P14</b>		N	N	F	F	F	F	F	F	F	F	F	F	O <sub>2)</sub>	N	N	O <sub>1)</sub>	N
ShopMill/ShopTurn																					
• Machining step programming		<b>6FC5800-0AP17-0YB0</b>	<b>P17</b>		N	N	F	F	F	F	F	F	F	F	F	F	O	N	N	N	N
programSYNC																					
• Step chains programming		<b>6FC5800-0AP05-0YB0</b>	<b>P05</b>		N	N	N	N	F	F	F	F	F	F	F	F	O	N	N	N	N
Programming support for geometry entries:																					
• ProgramGUIDE (programming support for cycles, dynamic programming graphics, animated elements)	<sup>1)</sup> SW version 2.5 and higher.				N	N	V	V	F	F	F	F	F	F	F	F	S <sub>1)</sub>	N	N	N	N
Geometry processor with programming graphics/ Free contour input (contour calculator)	<sup>1)</sup> With plus and pro versions.				S <sub>1)</sub>	S	V	V	F	F	F	F	F	F	F	F	N	S	S	S	S
• Screens for 1/2/3-point contours (contour definition programming)					S	S	V	V	F	F	F	F	F	F	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 <sub>3)</sub>	S <sub>2)</sub>	S <sub>2)</sub>	S <sub>2)</sub>	S <sub>2)</sub>
Technology cycles for drilling/milling and turning	1) SW version 2.5 and higher.			S	N	V	V	F	F	S <sub>1)</sub>	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 <sub>2)</sub>	N	N	O <sub>1)</sub>	O <sub>1)</sub>
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 <sub>1)</sub>	O <sub>1)</sub>	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 <sub>1)</sub>	O <sub>1)</sub>	N	N					
CAD-Reader for PC	See HMI software for CNC controls.	6FC5260-0AY00-0AG1 6FC5260-0AY00-0AG0 6FC5260-0AY00-0AG2 6FC5260-0AY00-0AG8		N	N	O	O	O	O					
<b>Simulation</b>														
Up to n channels can be simulated	1) Precondition: programmSync option.			N	N	2	2	10	10	4 <sub>1)</sub>	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 programm X, while program Y is being executed	1) With NCU 720/NCU 730.			N	N	V	V	F	F	S <sub>1)</sub>	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 <sub>2)</sub>	S	N	S <sub>1)</sub>	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

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 DE sl		Blank field: Function is not dependent on operating software				
						840 DI sl	840 D sl	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 Real-time simulation of current machining operation		6FC5800-0AP23-0YB0	P23	N	N	F	F	F	F	N	N	N	O	N
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 Real-time simulation of current machining operation		6FC5800-0AP24-0YB0	P24	N	N	F	F	F	F	N	N	N	N	O
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	<sup>1)</sup> Application-specific by the machine manufacturer.			N	N	V	V	F	F	S <sup>1)</sup>	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					
<b>Operating modes</b>														
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	<sup>1)</sup> Tool measuring only.			S <sup>1)</sup>	N	V	V	V	V	S	S	N	S	S <sup>1)</sup>
• 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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											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	<sup>1)</sup> External CF card on front panel. <sup>2)</sup> On external CF card in PCU 50. <sup>3)</sup> On CF card of NCU, not with HMI on PCU 50.	6FC5800-0AP12-0YB0	P12		S <sub>1)</sub>	S <sub>1)</sub>	S <sub>2)</sub>	S <sub>2)</sub>	O <sub>3)</sub>	O <sub>3)</sub>	O <sub>3)</sub>	N	O	O <sub>3)</sub>	O <sub>3)</sub>
• Execution from network drive	<sup>1)</sup> With pro version. <sup>2)</sup> Precondition: Managing of network drives. <sup>3)</sup> SW version 2.6 and higher.	6FC5800-0AP01-0YB0	P01		S <sub>1)2)</sub>	S <sub>1)2)</sub>	V	V	S <sub>2)3)</sub>	S <sub>2)3)</sub>	S <sub>3)</sub>	O <sub>2)</sub>	O <sub>2)</sub>	O	O
• Execution from hard disk	<sup>1)</sup> On PCU 50.				N	N	V	V	F	F	S <sub>1)</sub>	S	N	S <sub>1)</sub>	S <sub>1)</sub>
• 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
<b>Tools</b>															
Tool types:					S	N	V	V	S	S	S	S	S	N	S
• Turning					S	N	V	V	S	S	S	S	S	S	S
• Drilling/milling					N	S	V	V	S	S	N	S	S	N	N
• Grinding					N	S	V	V	S	S	N	S	S	N	N
• Nibbling					N	N	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

	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	
														Type (for complete Order-No., see notes)
Tool carrier with orientation capability			N	N	S	S	S	S	S	S	S	S	N	
Look-ahead detection of contour violations			S	S	S	S	S	S	S	S	S	S	N	
Grinding-specific tool offset with grinding wheel surface speed			N	S	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	S	N	N	
• Tool offset selection via D number without T assignment (flat D number)			N	N	V	V	S	S	N	S	S	N	N	
• Editing of tool data			S	S	V	V	S	S	S	S	S	N	N	
• Tool offset selection via T and D numbers			S	S	S	S	S	S	S	S	S	N	N	
• Number of tools/cutting edges in tool list		<sup>1)</sup> With value version: 32. With plus version: 64.	128 <sub>1)</sub>	128 <sub>1)</sub>	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)		<sup>1)</sup> SW version 1.5/2.5 and higher.	N	N	N	N	S <sub>1)</sub>	S <sub>1)</sub>						
Operation <u>with</u> tool management with more than 3 magazines		<sup>1)</sup> SW version 1.5/2.5 and higher.	6FC5800-0AM88-0YB0	M88	N	N	N	N	O <sub>1)</sub>	O <sub>1)</sub>				
• System displays in standard software			N	N	N	N	S	S	S	S	S	S	S	
• User-friendly commissioning via system displays		<sup>1)</sup> Precondition: PCU 50.	N	N	N	N	V	V	S	S	N	S <sub>1)</sub>	S <sub>1)</sub>	
• Tool list			N	N	N	N	S	S	S	S	S	S	S	
• Configurable tool lists		<sup>1)</sup> One configured list is possible.	N	N	N	N	S	S	S <sub>1)</sub>	S	N	S <sub>1)</sub>	S <sub>1)</sub>	
• 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	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		<sup>1)</sup> In the configured list.	N	N	V	V	S	S	S	S	S	S <sub>1)</sub>	S <sub>1)</sub>	
• Magazine list			N	N	V	V	S	S	S	S	S	S	S	
• Configurable magazine list			N	N	V	V	S	S	S	S	N	N	N	
• Max. number of magazines			N	N	32	32	32	32						
• Magazine data			N	N	V	V	S	S	S	S	O	S	S	
• Vacant position search and positioning			N	N	V	V	S	S	S	S	O	S	S	
• Easy vacant position search using softkeys			N	N	V	V	S	S	S	S	N	N	N	
• Loading and unloading of tools			N	N	V	V	S	S	S	S	O	S	S	
• More than one loading and unloading point per magazine			N	N	V	V	S	S	S	S	N	N	N	
• Tool cabinet and tool catalog			N	N	V	V	S	S	S	N	S	N	N	
• Loading and unloading via code carrier system			N	N	V	V	S	S	N	S	N	N	N	
• Adapter data			N	N	V	V	S	S	N	S	N	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.	Order code	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
• 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	<sup>1)</sup> SW version 2.6 SP1 and higher.	6FC5800-0AS08-0YB0	S08		N	N	N	N	O <sup>1)</sup>	O <sup>1)</sup>	O	N	N	N	N
Operation <u>with</u> tool management:	<sup>1)</sup> Up to SW version 1.4. <sup>2)</sup> Up to SW version 1.4/2.4.	6FC5800-0AM50-0YB0	M50		N	N	V <sup>1)</sup>	V <sup>1)</sup>	O <sup>2)</sup>	O <sup>2)</sup>	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	<sup>1)</sup> Precondition: PCU 50.				N	N	V	V	O	O	N	O	N	S <sup>1)</sup>	S <sup>1)</sup>
• Tool list					N	N	O	O	O	O	O	O	O	S	S
• Configurable tool lists	<sup>1)</sup> One configured list is possible.				N	N	O	O	O	O	O <sup>1)</sup>	O	N	S <sup>1)</sup>	S <sup>1)</sup>
• Number of tools/cutting edges in tool list					N	N	V	V	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	<sup>1)</sup> In configured list.				N	N	V	V	O	O	O	O	O	S <sup>1)</sup>	S <sup>1)</sup>
• 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.				N	N	V	V	F	F	N	O	N	O <sup>1)</sup>	O <sup>1)</sup>
• TDI IFC	<sup>1)</sup> On PCU 50.				N	N	V	V	F	F	N	O	N	O <sup>1)</sup>	O <sup>1)</sup>
• TDI Overview	On request.				N	N	V	V	F	F	N	O	N	O <sup>1)</sup>	O <sup>1)</sup>
• TDI Overview	<sup>1)</sup> On PCU 50.	6FC5800-0AP34-0YB0 6FC6000-2EC00-0AA8 6FC6000-2EC0. - .AA8	P34		N	N	V	V	F	F	N	O	N	O <sup>1)</sup>	O <sup>1)</sup>
• TDI Toolhandling	<sup>1)</sup> On PCU 50.	6FC5800-0AP35-0YB0 6FC6000-2FC00-0AA8 6FC6000-2FC0. - .AA8	P35		N	N	V	V	F	F	N	O	N	O <sup>1)</sup>	O <sup>1)</sup>
• TDI Planning	<sup>1)</sup> On PCU 50.	6FC5800-0AP36-0YB0 6FC6000-2GC00-0AA8 6FC6000-2GC0. - .AA8	P36		N	N	V	V	F	F	N	O	N	O <sup>1)</sup>	O <sup>1)</sup>

		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
• TDI Statistic Tool statistics, local version	1) On PCU 50.	6FC5800-0AP51-0YB0 6FC6000-2KC00-0AA8 6FC6000-2KC0. - .AA8	P51	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>
• TDI Cell		6FC6000-2BF00-0AB0 6FC6000-2BC00-0AA0 6FC6000-2BC0. - .AA0		N	N	V	V	F	F	N				
• TDI Machine Tool management, local version	1) On PCU 50.	6FC5800-0AP37-0YB0 6FC6000-2AC00-0AA8 6FC6000-2AC0. - .AA8	P37	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>
• TDI Toolplan Generation Tool plan generation, local version	1) On PCU 50.	6FC5800-0AP38-0YB0 6FC6000-2JC00-0AA8 6FC6000-2JC0. - .AA8	P38	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>
• TDI Ident Connection Interfacing of tool identification systems	1) On PCU 50.	6FC6000-2HF00-0AB0 6FC6000-2HC00-0AA0 6FC6000-2HC0. - .AA0		N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>
<b>Communication/data management</b>														
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 <sub>1)</sub>	S <sub>1)</sub>	N	N	F <sub>2)</sub>	F <sub>2)</sub>	O <sub>2)</sub>	N	O <sub>2)</sub>	O <sub>2)</sub>	O <sub>2)</sub>
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 <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>
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 <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>
Additional network drive management:														
• Via Ethernet, max. 4	1) With pro version. 2) SW version 2.6 and higher.	6FC5800-0AP01-0YB0	P01	S <sub>1)</sub>	S <sub>1)</sub>	V	V	F	F	S <sub>2)</sub>	S <sub>2)</sub>	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 <sub>3)</sub>	O <sub>3)</sub>	S <sub>2)</sub>	S <sub>1)</sub>	N	S <sub>1)</sub>	S <sub>1)</sub>
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	S	S					
• NCU 7x0.2								N	N					
• NCU 7x0.3 PN														
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 <sub>1)</sub>	S	N	S <sub>1)</sub>	S <sub>1)</sub>

		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		840DIE sl		840DI sl		840DE sl		840D sl		Blank field: Function is not dependent on operating software				
				SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI												
Data backup with Ghost (Backup/Restore) on hard disk/network	<sup>1)</sup> On PCU 50.			N	N	S	S	F	F	S <sub>1)</sub>	S	N	S <sub>1)</sub>	S <sub>1)</sub>						
Data backup for NCU CF card (Backup/Restore) on memory stick or via network	<sup>1)</sup> With pro version.			S <sub>1)</sub>	S <sub>1)</sub>	N	N	S	S											
DNC – Direct Numeric Control:	See HMI software for CNC controls – MCIS software.																			
• DNC Machine CNC program transfer	<sup>1)</sup> On PCU 50.	6FC5800-0AP40-0YB0 6FC6000-0AC00-0AA8 6FC6000-0AC0. - .AA8 6FC6000-0AC0. - .AE0 6FC6000-0AC00-0AT7 6FC6000-0AC0. - .AT7	P40	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
• DNC Cell CNC program management		6FC6000-0BF00-0AB0 6FC6000-0BC00-0AA0 6FC6000-0BC0. - .AA0 6FC6000-0BC0. - .AE0		N	N	O	O	O	O	N										
• DNC Plant CNC programm management		6FC6000-0CF00-0AB0 6FC6000-0CC00-0AA0 6FC6000-0CC0. - .AA0		N	N	O	O	O	O	N										
• 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	<sup>1)</sup> On PCU 50.	6FC5800-0AP41-0YB0	P41	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
• DNC IFC Serial Connection for serial CNC	<sup>1)</sup> On PCU 50.	6FC6000-0FF00-0AB0		N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
• DNC IFC Dialog Option for serial CNC	<sup>1)</sup> On PCU 50.	6FC6000-0GF00-0AB0		N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
• DNC IFC Filesystem Connection for network-capable CNC machines	<sup>1)</sup> On PCU 50.	6FC6000-0KF00-0AB0		N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
• DNC Compare CNC program comparison	<sup>1)</sup> On PCU 50.	6FC6000-0HF00-0AB0		N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
RPC SINUMERIK:	See HMI software for CNC controls – MCIS software.																			
• RPC SINUMERIK Data exchange between CNC and host computer (computer link)	<sup>1)</sup> On PCU 50.	6FC5800-0AP50-0YB0 6FC6000-7AC00-0AA8 6FC6000-7AC0. - .AA8 6FC6000-7AC0. - .AE0	P50	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>						
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 6BQ3030-1AA10-0AD0 6BQ3030-1AA20-1AC0 6BQ3030-1AA30-3AD0 6BQ3030-1AA70-3AD0		N	N	O	O	O	O											

		SINUMERIK 802D sl/840Di sl/840D sl												
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										SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
• ADDM Agent Client for data backup	<sup>1)</sup> On PCU 50.	6FC5800-0AP48-0YB0	P48	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>
<b>Production data evaluation</b>														
MDA – Machine Data Acquisition (machine and production data acquisition):	See HMI software for CNC controls – MCIS software.	6FC6000-3BF00-0AB0 6FC6000-3BC00-0AA0 6FC6000-3BC0. - .AA0 6FC6000-3BC0. - .AE0		N	N	O	O	O	O	N				
• MDA Cell Machine and production data management														
• MDA IFC (interface client) Production data acquisition for network-capable controls	<sup>1)</sup> On PCU 50.	6FC5800-0AP43-0YB0	P43	N	N	V	V	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>
• MDA Machine Production data acquisition, local version	<sup>1)</sup> 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 <sub>1)</sub>	O <sub>1)</sub>
<b>Operation</b>														
Operator panels:				S	S	N	N	N	N	N	N	N	N	N
• SINUMERIK 802D sl, 10,4" color														
Operator panel fronts:	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 019, 19" color														
• 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					

		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	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	
• 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.															
• SINUMERIK PCU 50 for machine operation with SINUMERIK Operate	HMI software for PC/PG separately be ordered. See operator components for CNC controls.	6FC5860-1YF00-0YA0														
		6FC5860-1YF2.-YA0														
		6FC5860-1YC00-0YA0														
		6FC5860-1YC2.-YA0				N	N	N	N	O	O	O				
		6FC5860-1YC2.-YA8														
		6FC5860-1YF00-0YB0														
• PC for machine operation with SINUMERIK Operate		6FC5860-1YP00-0YL8														
		6FC5860-2YC00-0YA0														
		6FC5860-2YC2.-YA0														
		6FC5860-2YC2.-YA8				N	N	N	N	O	O	O				
• SINUMERIK PCU 50 for machine operation with HMI Startup		6FC5860-2YF00-0YB0														
		6FC5860-2YP00-0YL8														
						N	N	S	S	N	N					
• SINUMERIK PCU 50 for machine operation with HMI-Advanced	1) SW version 1.4 SP1 and higher incl. ShopMill HMI/ShopTurn HMI.	6FC5253-7BX10-.AF0														
		6FC5253-0BX10-0AF0														
		6FC5253-7BX10-.AG0														
		6FC5253-0BX10-0AG1				N	N	S <sub>1)</sub>	S <sub>1)</sub>	O	O		O			
		6FC5253-0BX10-0AG2														

		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	
<b>S</b> = Standard (Basic version) <b>O</b> = Option <b>F</b> = Function is dependent on operating software <b>V</b> = Precondition: HMI-Advanced operating software <b>N</b> = Not possible		Notes (footnotes are applicable line by line)	Type (for complete Order-No., see notes)												
<ul style="list-style-type: none"> <li>• PC for machine operation with HMI-Advanced</li> </ul>		See HMI software for CNC controls.	6FC5253-7BX10-.AG3 6FC5253-7BX40-.AG0 6FC5253-0BX40-0AG1 6FC5253-0BX40-0AG2 6FC5253-7BX40-.AG3		N	N	O	O	O	O		O			
<ul style="list-style-type: none"> <li>• SINUMERIK PCU 50 for machine operation with ShopMill HMI</li> </ul>		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					
<ul style="list-style-type: none"> <li>• SINUMERIK PCU 50 for machine operation with ShopTurn HMI</li> </ul>		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					
<ul style="list-style-type: none"> <li>• SINUMERIK 840Di sl for machine operation with ShopMill HMI or ShopTurn HMI</li> </ul>		Only data carrier without license required. See basic components.	6FC5820-3YC .. - .YA8 6FC5820-3XC .. - .YA8		N	N	V	V	N	N					
Connection for: <ul style="list-style-type: none"> <li>• SIMATIC Thin Client Touch 10" and 15" units via Industrial Ethernet</li> <li>• Standard monitor (DVI), VGA via ext. adapter for PCU 50</li> <li>• SIMATIC OP 177B/TP 177B/OP 277/TP 277 and MP 277/MP 377</li> <li>• SIMATIC OP 170B/TP 170B and OP 270/TP 270 with 6"/10" display and MP 170/MP 270B/MP 370 with keys/touch</li> </ul>		SW version 2.6 SP1 and SIMATIC Version 1.4 and higher.			N	N	N	N	S	S					
		WinCC flexible is required for OA applications.			N	N	S	S	S	S					
		WinCC flexible is required for OA applications.			N	N	S	S	S	S					
Software for: <ul style="list-style-type: none"> <li>• 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</li> <li>• SIMATIC OP 177B/TP 177B/MP 277 operator panel for machine operation with HMI Lite CE</li> </ul>		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 <sup>1)</sup>	N	O	N
		See HMI software for CNC controls.	6FC5263-0PY11-0AG0 6FC5263-.PY11-.AG0 6FC5263-0PY11-0AG1		N	N	N	N	O	O					
Control unit management: <ul style="list-style-type: none"> <li>• Identical display on all OPs with TCU</li> <li>- Simultaneous operation interlock</li> <li>- Activate/deactivate MCP/MPP</li> <li>- Different resolutions, e.g. OP 010/OP 012</li> <li>- Up to 2 operator panel fronts, each with one TCU on an NCU 710.2/NCU 710.3 PN</li> <li>- 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</li> </ul>					N	N	S	S	S	S					
					N	N	S	S	S	S					
					N	N	S	S	S	S					
					N	N	N	N	S	S					
					N	N	N	N	S	S					



		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	Order-No.	Order code	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	Blank field: Function is not dependent on operating software				
											SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
- 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			<sup>1)</sup> A number of proven configurations (see documentation for SINUMERIK 840Di sl).		N	N	S <sup>1)</sup>	S <sup>1)</sup>	S	S					
- From 2/4 operator panel fronts, as many operator panel fronts as required due to intelligent suppression			<sup>1)</sup> SW version 2.x and higher.		N	N	S	S	S <sup>1)</sup>	S <sup>1)</sup>	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
• 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	O	N	N
• SINUMERIK HT 8 (with handwheel)	6FC5403-0AA20-1AA0				N	N	O	O	O	O	O	O	O	N	N
- Touch pen with holding loop	6FC5348-0AA08-4AA0				N	N	O	O	O	O	O	O	O		
- Wall holder for SINUMERIK HT 8	6AV6574-1AF04-4AA0				N	N	O	O	O	O	O	O	O		
• SINUMERIK HT 2 handheld terminal	6FC5303-0AA00-2AA0				N	N	O	O	O	O	O	O	O		
- Magnetic clamp for SINUMERIK HT 2	6FC5348-0AA08-0AA0				N	N	O	O	O	O	O	O	O		
- Holder for SINUMERIK HT 2	6FC5348-0AA08-1AA0				N	N	O	O	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	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	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	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	O	O		
• Handheld unit type B-MPI with coiled connecting cable	6FX2007-1AE04				N	N	O	O	O	O	O	O	O		
• Handheld unit type B-MPI with straight connecting cable	6FX2007-1AE14				N	N	O	O	O	O	O	O	O		
- Distributor	6FX2006-1BH01				N	N	O	O	O	O	O	O	O		
- Handwheel connection module for PROFIBUS	6FC5303-0AA02-0AA0		Not required for handwheel connection via machine control panel.		N	N	O	O	O	O	O	O	O		
• Mini handheld unit with coiled connecting cable	6FX2007-1AD03				N	N	O	O	O	O	O	O	O		
• Mini handheld unit with straight connecting cable	6FX2007-1AD13				N	N	O	O	O	O	O	O	O		
- Connection kit for mini handheld unit	6FX2006-1BG03				N	N	O	O	O	O	O	O	O		
- Handwheel connection module for PROFIBUS	6FC5303-0AA02-0AA0		Not required for handwheel connection via machine control panel.		N	N	O	O	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					

		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								
															Type (for complete Order-No., see notes)	Notes (footnotes are applicable line by line)						
<ul style="list-style-type: none"> <li>S = Standard (Basic version)</li> <li>O = Option</li> <li>F = Function is dependent on operating software</li> <li>V = Precondition: HMI-Advanced operating software</li> <li>N = Not possible</li> </ul>																						
<ul style="list-style-type: none"> <li>• MCP 310 PN</li> <li>- Actuating element, 22 mm, latching mushroom pushbutton, red</li> <li>- Contact block</li> <li>- Cable set for additional control devices</li> <li>- Spindle/rapid traverse override rotary switch 1 x 16G, T = 24, cap, button, pointer, rapid traverse and spindle dials</li> </ul>		6FC5303-0AF23-1AA1		N	N	O	O	O	O													
		3SB3000-1HA20		N	N	O	O	O	O													
		3SB3400-0A		N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>• MCP 483C PN</li> <li>- Cable set for additional control devices</li> </ul>		6FC5247-0AA35-0AA0		N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>• MCP 483 PN</li> <li>- Cable set for additional control devices</li> </ul>		6FC5303-0AF22-0AA1		N	N	O	O	O	O													
		6FC5247-0AA35-0AA0		N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>• MCP 483</li> <li>- Cable set for additional control devices</li> </ul>		6FC5203-0AF22-1AA2		N	N	O	O	O	O													
		6FC5247-0AA35-0AA0		N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>Push Button Panel with machine control panel functions:</li> <li>• MPP 310 IEH with connection for SINUMERIK HT 8</li> <li>• MPP 483</li> <li>• MPP 483 H for handheld unit</li> <li>• MPP 483 A without override</li> <li>• MPP 483 HTC with connection for SINUMERIK HT 8</li> <li>• MPP 483 IE</li> <li>• MPP 483 IEH with connection for SINUMERIK HT 8</li> </ul>		6FC5303-1AF20-8AA1		N	N	O	O	O	O													
		6FC5303-1AF00-0AA1		N	N	O	O	O	O													
		6FC5303-1AF00-1AA1		N	N	O	O	O	O													
		6FC5303-1AF01-0AA1		N	N	O	O	O	O													
		6FC5303-1AF00-8AA1		N	N	O	O	O	O													
		6FC5303-1AF10-0AA0		N	N	O	O	O	O													
		6FC5303-1AF10-8AA0		N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>Electronic Key System EKS</li> <li>• Software option, delivery of a license</li> </ul>		6FC5800-0AP53-0YB0	P53	N	N	O	O	O	O	O	O	N	N	N								
<ul style="list-style-type: none"> <li>Direct key module</li> <li>• Direct key module mounting kit</li> </ul>		6FC5247-0AF11-0AA0		N	N	O	O	O	O													
		6FC5247-0AF30-0AA0		N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>Connection for electronic handwheels:</li> <li>• With 120 x 120 mm (4.72 x 4.72 in) front panel, DC 5 V</li> <li>• With 76,2 x 76,2 mm (3 x 3 in) front panel, DC 5 V</li> <li>• With 76,2 x 76,2 mm (3 x 3 in) front panel, DC 24 V, HTL</li> <li>• Without front panel, without setting wheel, DC 5 V</li> <li>• Without front panel, with setting panel, DC 5 V</li> <li>• Portable in housing, 2,5 m (8.2 ft) coiled cable, DC 5 V</li> </ul>				2	2	2 <sub>1)</sub>	2 <sub>1)</sub>	2/3 <sub>2)</sub>	2/3 <sub>2)</sub>													
		6FC9320-5DB01		O	O	O	O	O	O													
		6FC9320-5DC01		O	O	O	O	O	O													
		6FC9320-5DH01		O	O	O	O	O	O													
		6FC9320-5DF01		O	O	O	O	O	O													
		6FC9320-5DM00		O	O	O	O	O	O													
		6FC9320-5DE02		O	O	O	O	O	O													
<ul style="list-style-type: none"> <li>Flange socket for portable handwheel</li> </ul>		6FC9341-1AQ		O	O	O	O	O	O													
<ul style="list-style-type: none"> <li>Handwheel connection module for PROFIBUS</li> </ul>		6FC5303-0AA02-0AA0	Not required for handwheel connection via machine control panel.	N	N	O	O	O	O													
<ul style="list-style-type: none"> <li>Cable distributor</li> </ul>		6FX2006-1BA02	Not required for handwheel connection via machine control panel.	N	N	O	O	N	N													
<ul style="list-style-type: none"> <li>Connection for keyboards:</li> </ul>																						

		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	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
• Full CNC keyboard, vertical format		6FC5303-ODT12-1AA0			O	O	N	N	N	N					
• Full CNC keyboard, horizontal format		6FC5303-ODM13-1AA0			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	<sup>1)</sup> Precondition: Card reader.	6FC5313-5AG00-0AA1			O	O	O	O	S	S	O <sub>1)</sub>	O	O <sub>1)</sub>	O <sub>1)</sub>	O <sub>1)</sub>
• CompactFlash card 8 GB	<sup>1)</sup> Precondition: Card reader.	6FC5313-6AG00-0AA0			N	N	O	O	S	S	O <sub>1)</sub>	O	O <sub>1)</sub>	O <sub>1)</sub>	O <sub>1)</sub>
• SIMATIC USB FlashDrive 2 GB	<sup>1)</sup> With version pro.	6ES7648-0DC40-0AA0			O <sub>1)</sub>	O <sub>1)</sub>	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	<sup>1)</sup> With OP 019 up to 4 channels.				N	N	V	V	V	V	S <sub>1)</sub>	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)	<sup>1)</sup> With PCU 50.				S	S	V	V	F	F	N	S	N	S <sub>1)</sub>	S <sub>1)</sub>
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	<sup>1)</sup> Other languages on request.				S <sub>1)</sub>	S <sub>1)</sub>	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	<sup>1)</sup> All available languages are supplied on-board. <sup>2)</sup> Unrestricted with PCU 50.				1)	1)	V	V	F	F	8 <sub>2)</sub>	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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				<p>Type                      (for complete Order-No.,                      see notes)</p>	<p>802D sl - T/M</p>	<p>802D sl - G/N</p>	<p>840 DIE sl</p>	<p>840 DI sl</p>	<p>840DE sl</p>	<p>840 D sl</p>	<p>SINUMERIK Operate</p>	<p>HMI-Advanced</p>	<p>HMI-Embedded</p>	<p>ShopMill HMI</p>	<p>ShopTurn HMI</p>
<p><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<sup>1)</sup>, Russian, Slovak<sup>1)</sup>, Swedish, Turkish</p>		<p>6FC5253-7BX10-.XG8</p>		N	N	O	O	O	O	N	O	O	O	O	
<p><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</p>		<p>6FC5860-0YC...-YA8</p>		N	N	O	O	O	O	O	N	N	N	N	
<p>Additional languages                      Software option for use of additional languages</p>		<p>6FC5800-0AN00-0YB0</p>	<p>N00</p>	N	N	V	V	F	F	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	O <sup>1)</sup>	
<p>Other languages</p>				1)	1)	V	V	F	F	1)	1)	1)	1)	1)	
<p><b>Monitoring functions</b></p>															
<p>Working area limitation</p>				S	S	S	S	S	S						
<p>Clamp protection for nibbling</p>				N	S	N	N	N	N						
<p>Limit switch monitoring</p>															
<p>Software and hardware limit switches</p>				S	S	S	S	S	S						
<p>Position monitoring</p>				S	S	S	S	S	S						
<p>Standstill (zero-speed) monitoring</p>				S	S	S	S	S	S						
<p>Clamping monitoring</p>				S	S	S	S	S	S						
<p>2D/3D protection areas</p>				N	N	S	S	S	S						
<p>Contour monitoring</p>				S	S	S	S	S	S						
<p>Contour monitoring using tunnel function</p>		<p>6FC5800-0AM52-0YB0</p>	<p>M52</p>	N	N	O	O	O	O						
<p>Path length evaluation</p>		<p>6FC5800-0AM53-0YB0</p>	<p>M53</p>	N	N	O	O	O	O						
<p>Axis limitation from the PLC</p>				N	N	S	S	S	S						
<p>Spindle speed limitation</p>				S	S	S	S	S	S						
<p>Axis collision protection PROT</p>		<p>Precondition:                      Loadable compile cycle.</p>	<p>6FC5800-0AN06-0YB0</p>	<p>N06</p>	N	N	N	O	N	O					
<p>Extended stop and retract ES, numerically controlled</p>			<p>6FC5800-0AM61-0YB0</p>	<p>M61</p>	N	N	N	N	O	O					
<p>PROFIBUS tool and process monitoring</p>		<p>Precondition:                      Loadable compile cycle.</p>	<p>6FC5800-0AM62-0YB0</p>	<p>M62</p>	N	N	N	N	O	O					
<p>Integrated tool monitoring and diagnostics</p>															
<p>• IMD light</p>		<p>Precondition:                      Loadable compile cycle.</p>	<p>6FC5800-0AN12-0YB0</p>	<p>N12</p>	N	N	N	N	O	O					
<p>• IMD base</p>		<p>Precondition:                      Loadable compile cycle.</p>	<p>6FC5800-0AN13-0YB0</p>	<p>N13</p>	N	N	N	N	O	O					
<p>• Monitoring for maximum tool speed/acceleration</p>			<p>6FC5800-0AS08-0YB0</p>	<p>S08</p>	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			
<b>Compensations</b>																	
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		<sup>1)</sup> SW version 2.6 SP1 and higher.		N	N	N	N	S <sub>1)</sub>	S <sub>1)</sub>								
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						
Circularity test		<sup>1)</sup> Precondition: HMI-Advanced On PCU 50.		N	N	F	F	F	F	S	S	O <sub>1)</sub>	O <sub>1)</sub>	O <sub>1)</sub>			
Bidirectional leadscrew error compensation		<sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM54-0YB0	M54	N	N	N	N	O <sub>1)</sub>	O							
Sag compensation, multi-dimensional		<sup>1)</sup> With restricted functionality, see export versions.	6FC5800-0AM55-0YB0	M55	O <sub>1)</sub>	O <sub>1)</sub>	O <sub>1)</sub>	O	O <sub>1)</sub>	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							
<b>PLC</b>																	
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									

	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		840DE sl		SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI					
						840 Di sl	840 D sl	840 D sl	840 D sl										
• NCU 710.2/NCU 720.2/NCU 730.2								0,1	0,1										
Ladder steps memory configuration	<sup>1)</sup> With value version: 4000.			6000 <sup>1)</sup>	6000	N	N	N	N										
PLC user memory in KB, incl. basic PLC program	<sup>1)</sup> SW version 1.4 and higher.			N	N	S 128	S 128	S 512 <sup>1)</sup>	S 512 <sup>1)</sup>										
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.	<b>6FC5800-0AD10-0YB0</b>	<b>D11 ... D12</b>	N	N	O	O												
• NCU 710.2/NCU 720.2/NCU 730.2	D11 to D12 only with SW version 1.4 and higher.		<b>D11 ... D12</b>					O	O										
• NCU 710.3 PN/NCU 720.3 PN/NCU 730.3 PN			<b>D11 ... D18</b>					O	O										
SIMATIC STEP 7 programming language:				S	S	O	O	O	O										
• LAD ladder diagram				N	N	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 continuous 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.	<b>6FC5611-0CA01-0AA1</b>		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	<sup>1)</sup> Quantity limited by I/Os. Quantity structure of PLC.			O	O	N	N	O <sup>1)</sup>	O <sup>1)</sup>										
Analog Drive Interface for 4 Axes ADI 4	No PROFIBUS certification.	<b>6FC5211-0BA01-0AA4</b>		O	O	O	O	O	O										
MCI board extension slot version with cable distributor		<b>6FC5222-0AA00-0AA1</b> <b>6FX2006-1BA02</b>		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										

	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		840DE sl		SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI				
						840 DI sl		840 D sl										
• PROFINECT CBA - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3 PN/720.3 PN/NCU 730.3 PN				N	N	N	N		N	N								
• PROFINECT I/O controller - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3 PN/720.3 PN/NCU 730.3 PN				N	N	N	N		N	N								
• PROFINECT I/O device - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3 PN/720.3 PN/NCU 730.3 PN				N	N	N	N		N	N								
Digital inputs, number in bytes	<sup>1)</sup> No. = Process image inputs.			216	216	256 <sub>1)</sub>	256 <sub>1)</sub>	1024 <sub>1)</sub>	1024 <sub>1)</sub>									
Digital outputs, number in bytes	<sup>1)</sup> No. = Process image outputs.			144	144	256 <sub>1)</sub>	256 <sub>1)</sub>	1024 <sub>1)</sub>	1024 <sub>1)</sub>									
I/O inputs, number in bytes	<sup>1)</sup> Logical address range inputs. <sup>2)</sup> 5700 usable, max.			N	N	8192 <sub>1)</sub>	8192 <sub>1)</sub>	8192 <sub>1)2)</sub>	8192 <sub>1)2)</sub>									
I/O outputs, number in bytes	<sup>1)</sup> Logical address range outputs. <sup>2)</sup> 5700 usable, max.			N	N	8192 <sub>1)</sub>	8192 <sub>1)</sub>	8192 <sub>1)2)</sub>	8192 <sub>1)2)</sub>									
Bit memories, number in bytes - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3PN/720.3 PN/NCU 730.3 PN	<sup>1)</sup> With value version: 128.			384 <sup>1)</sup>	384	4096	4096	4096	4096									
Timers, number - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3PN/720.3 PN/NCU 730.3 PN	<sup>1)</sup> With value and plus versions: 40.			64 <sup>1)</sup>	64 <sup>1)</sup>	512	512	512	512									
Counter, number - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3PN/720.3 PN/NCU 730.3 PN	<sup>1)</sup> With value and plus versions: 32.			64 <sup>1)</sup>	64 <sup>1)</sup>	512	512	512	512									
Subroutines FB, FC (largest number per type) - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3PN/720.3 PN/NCU 730.3 PN				64	64	N	N	N	N									
DB, largest number - NCU 710.2/NCU 720.2/NCU 730.2 - NCU 710.3PN/720.3 PN/NCU 730.3 PN				N	N	2048	2048	2048	2048									
Cyclic function block Time-controlled function blocks				S	S	S	S	S	S									
Equipment for PLC programming and program test with PG/PC				N	N	S	S	S	S									
User machine data for configuring the PLC user program				O	O	O	O	O	O									
				S	S	N	N	N	N									
<b>Safety functions</b> SINUMERIK Safety Integrated Safety functions for personnel and machine protection • Safe shutdown	Preconditions: See Basic components.																	
				N	N	N	N	O	O									

		SINUMERIK 802D sl/840Di sl/840D sl								Blank field: Function is not dependent on operating software					
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	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
					N	N	N	N	O	O					
• SBR (safe braking ramp)					N	N	N	N	O	O					
• SH (safe standstill)					N	N	N	N	O	O					
• SBH (safe operation stop)					N	N	N	N	O	O					
• SG (safely reduced speed)					N	N	N	N	O	O					
• SE (safe software limit switch)					N	N	N	N	O	O					
• SN (safe software cams)					N	N	N	N	O	O					
• SGE/SGA (safety-related input/output signals)					N	N	N	N	O	O					
• SPL (safe programmable logic)					N	N	N	N	O	O					
• SBM (safe brake management)					N	N	N	N	O	O					
• Safety-related output n < nx					N	N	N	N	O	O					
• Safety-oriented communication via standard bus (PROFIsafe with ET 200S, ET 200pro, ET 200eco)	See Catalog ST 70 or Siemens Industry Mall for further information.				N	N	N	N	O	O					
• Safe integration of sensors via Asi F-Link	See Catalog ST 70 or Siemens Industry Mall for further information.				N	N	N	N	O	O					
Safety Integrated SI-Basic incl. 1 axis/spindle; up to 4 inputs and up to 4 outputs for safe programmable logic		6FC5800-0AM63-0YB0	M63		N	N	N	N	O	O					
Safety Integrated SI-Comfort incl. 1 axis/spindle; up to 64 inputs and up to 64 outputs for safe programmable logic		6FC5800-0AM64-0YB0	M64		N	N	N	N	O	O					
Safety Integrated SI axis/spindle extra for each additional axis/spindle	Example: 4 additional axes/ spindles: C74	6FC5800-0AC70-0YB0	C71 ... C78		N	N	N	N	O	O					
Safety Integrated SI axis/spindle package additional 15 axes/spindles		6FC5800-0AC60-0YB0	C61, C62		N	N	N	N	O	O					
Safety Integrated automated acceptance test with SinuCom NC SI	See HMI software for CNC controls – SinuCom.				N	N	N	N	O	O					
SINAMICS S120 Safety Integrated, drive-independent safety functions															
• SBC (Safe Brake Control)					N	N	N	N	S	S					
• STO (Safe Torque Off)					N	N	N	N	S	S					
• SS1 (Safe Stop 1)					N	N	N	N	S	S					
<b>Commissioning</b>															
Commissioning software for drive system is integrated:															
• SINAMICS S120					S	S	N	N	F	F	N	S	N	N	N
• SINAMICS S120 with CU320	With STARTER commissioning tool (included in scope of supply).				N	N	S	S	N	N	N	N	N	N	N
Trace	<sup>1)</sup> SW 2.7 and higher.				N	N	V	V	S <sub>1)</sub>	S <sub>1)</sub>	S	N	N	N	N
Circularity test	<sup>1)</sup> SW 2.7 and higher.				N	N	V	V	S <sub>1)</sub>	S <sub>1)</sub>	S	N	N	N	N
Auto Servo Tuning AST Fully automatic speed and position controller optimization	<sup>1)</sup> SW version 2.6 and higher.				N	N	V	V	S <sub>1)</sub>	S <sub>1)</sub>	S	N	N	N	N



	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		840DE sl	840 D sl	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI
						840 Di sl	840 Di sl							
Commissioning trace (drive optimization without an additional oscilloscope) Series start-up via serial interface	<sup>1)</sup> With PCU 50.			N	N	V	V	F	F	N	S	N	S <sub>1)</sub>	S <sub>1)</sub>
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	<sup>1)</sup> Precondition: Management of network drives.			S	S	V	V	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>
Series start-up via programming of CF card offline or online	<sup>1)</sup> Precondition: Additional HMI user memory on CF card of the NCU.			S	S	N	N	S <sub>1)</sub>	S <sub>1)</sub>					
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/840D 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		N	N	S	S	O	O					
		6FC5250-0AY00-0AG0												
		6FC5250-7AY00-AG0												
		6FC5250-0AY00-0AG2												
		6FC5250-7AY00-AG3												
• 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		N	N	N	N	O	O					
		6FC5862-2YC...-YA0												
SinuCom UPEXpert				N	N	N	N	O	O					
SinuCom UPSHield				N	N	N	N	O	O					

		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	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												
SinuCom UPDiff					N	N	N	N	O	O											
SinuCom UPTopo					N	N	N	N	O	O											
SinuCom Protector					N	N	N	N	O	O											
STARTER commissioning tool for SINAMICS and MICROMASTER	<sup>1)</sup> On Toolbox. <sup>2)</sup> For topology and diagnostics.	<b>6SL3072-0AA00-0AG0</b>			S <sub>1)</sub>	S <sub>1)</sub>	O <sub>2)</sub>	O <sub>2)</sub>	N	N											
<b>Diagnostic functions</b>																					
<b>Alarms and messages</b>																					
Action log for diagnostic purposes, can be activated	<sup>1)</sup> Logbook for alarms/keys.				S <sub>1)</sub>	S <sub>1)</sub>	V	V	S	S							S	S	S	S	
PLC status	<sup>1)</sup> Generally possible via STEP 7 on PC/PG.				S	S	V <sub>1)</sub>	V <sub>1)</sub>	S <sub>1)</sub>	S <sub>1)</sub>							S	S	S	S	
LAD display	<sup>1)</sup> Generally possible via STEP 7 on PC/PG.				S	S	N <sub>1)</sub>	N <sub>1)</sub>	N <sub>1)</sub>	N <sub>1)</sub>							N	N	N	N	
SIMATIC STEP 7 for SINUMERIK hardware for service functions	See HMI software for CNC controls – Tools. <sup>1)</sup> With PCU 50.	<b>6FC5252-0AY00-0AG0</b> <b>6FC5252-0AY00-0AG1</b> <b>6FC5252- .AY01- .AG0</b>			N	N	O	O	O <sub>1)</sub>	O <sub>1)</sub>											
RCS 802 (Remote Control System) remote diagnostics, snap shot, license for PC	With pro version.	<b>6FC6000-6DA51-0AA0</b>			O	O	N	N	N	N							N	N	N	N	
• PLC remote diagnostics via modem	Programming tool and modem required. <sup>1)</sup> With pro and plus versions.				S <sub>1)</sub>	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	<sup>1)</sup> With PCU 50.	<b>6FC5800-0AP30-0YB0</b>	<b>P30</b>		N	N	F	F	F	F							O	O	O	O <sub>1)</sub>	
• RCS Viewer for PC/PG		<b>6FC6000-6DF00-0BB0</b> <b>6FC6000-6DC00-0BA0</b> <b>6FC6000-6DC0.-BA0</b>			N	N	N	N	F	F											
• RCS Viewer Embedded for PC/PG		<b>6FC6000-6DF88-8BB0</b> <b>6FC6000-6DC80-0BA0</b> <b>6FC6000-6DC8.-BA0</b>			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 <sup>1)</sup> SW version 2.6 and higher for NCU or SINUMERIK Operate for PCU.	<b>6FC5860-7YC00-0YA0</b> <b>6FC5860-7YC...-YA0</b>			N	N	N	N	F <sub>1)</sub>	F <sub>1)</sub>											
<b>Service and maintenance</b>																					
ePS Network Services: - Company Account and - Value Account are required for using the services	<sup>1)</sup> With PCU 50.	<b>6FC6001-0EE00-0CA1</b> <b>6FC6001-0EE00-0AF8</b>			N	N	V	V	F	F							N	O	N	O <sub>1)</sub>	

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	SINUMERIK Operate	HMI-Advanced	HMI-Embedded	ShopMill HMI	ShopTurn HMI							
<ul style="list-style-type: none"> <li>ePS Diagnostic Services for diagnostic functions with machine faults and Workflow Services, remote operation and remote monitoring of machine controls</li> </ul>	1) With PCU 50. 2) HMI-Advanced is also required for remote access functionality.	6FC6001-0EE00-0DS0		N	N	V	V	F	F	O <sub>2)</sub>	O	O <sub>2)</sub>	O <sub>1)</sub>	O <sub>1)</sub>							
<ul style="list-style-type: none"> <li>ePS Condition Monitoring Basic For zustandsorientierte Wartung</li> </ul>	1) With PCU 50.	6FC6001-0EE00-0MB0		N	N	V	V	F	F	O	O	O	O <sub>1)</sub>	O <sub>1)</sub>							
<ul style="list-style-type: none"> <li>ePS Combi Package Diagnostic Services and Condition Monitoring Basic</li> </ul>	1) With PCU 50. 2) HMI-Advanced is also required for remote access functionality.	6FC6001-0EE00-0KP0		N	N	V	V	F	F	O <sub>2)</sub>	O	O <sub>2)</sub>	O <sub>1)</sub>	O <sub>1)</sub>							
TPM – Total Productive Maintenance Servicing and maintenance support:	See HMI software for CNC controls – MCIS software.																				
<ul style="list-style-type: none"> <li>TPM Machine for SINUMERIK Maintenance management</li> </ul>	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 <sub>1)</sub>	O <sub>1)</sub>							
<ul style="list-style-type: none"> <li>TPM Cell Maintenance management on PC</li> </ul>		6FC6000-1BF00-0AB0 6FC6000-1BC00-0AA0 6FC6000-1BC0.-AA0		N	N	F	F	F	F	N	O	N	N	N							
<ul style="list-style-type: none"> <li>TPM IFC for SINUMERIK Preventive maintenance for network-capable controls</li> </ul>	1) With PCU 50.	6FC5800-0AP46-0YB0	P46	N	N	F	F	F	F	N	O	N	O <sub>1)</sub>	O <sub>1)</sub>							
<ul style="list-style-type: none"> <li>TPM HMI Additional user interface for Windows-based PC</li> </ul>		6FC6000-1DF00-0AB0		N	N	F	F	F	F	N	O	N	N	N							
<ul style="list-style-type: none"> <li>TPM demo version</li> </ul>		6FC6000-1AC00-0AT7		N	N	F	F	F	F	N	O	N	N	N							