

2.1 General description

seepex pumps are members of the group of rotating displacement pumps.

- Characteristic features
 - Special configuration/arrangement of the rotor and stator pumping elements.
 - Motion sequence

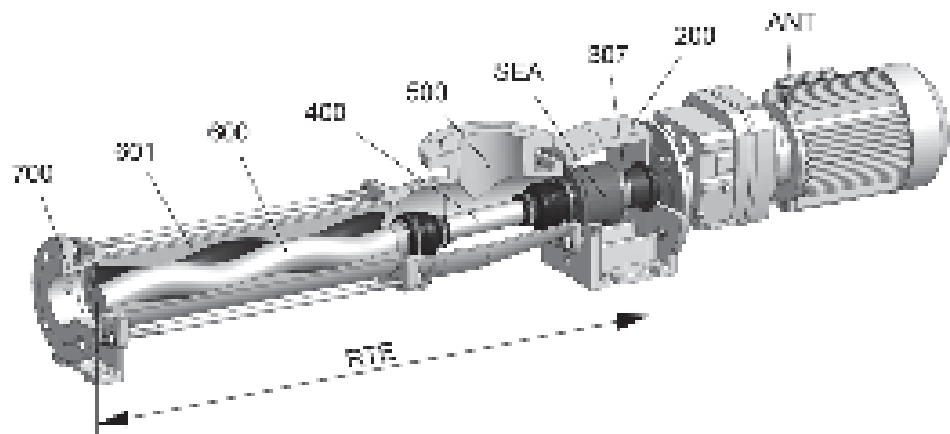
2.2 Mode of action and pumping principle of the seepex pump

- Sealing bands are produced through geometric design/contact of both conveying elements.
- Sealing bands ensure a perfect fit between the suction and pressure side.

Result:

- Increased pump suction.
- Higher pressure build-up independent of speed possible.

2.3 Constructive design



No.	Designation
ANT	Drive
200	Lantern
307	Plug-in shaft
400	Coupling rod
SEA	Shaft seal
500	Suction casing
600	Rotor
RTE	Rotating unit
601	Stator
700	Pressure branch

01/02/2023

Item 10 ()

qty.: 2

Progressive cavity pump

BN 05-12

Application data

Conveyed product	polymer solution
Flowability	well flowable
Solids content	without
Size of solids	not applicable
Concentration	≤ 1 %
Density	1.5 kg/dm ³
Product temperature	5°C - 35°C
pH value	7
Kind of operation	continuous
Operating hours	24 h/day
Location	indoor, dry atmosphere
Altitude of installation	up to 1000 m assumed
Surrounding temperature	normal (5-40 °C)

Performance data

	Capacity	Pressure	Speed	
	100 l/h	4 bar	62 min ⁻¹	min
	184 l/h	4 bar	109 min ⁻¹	norm
	420 l/h	4 bar	241 min ⁻¹	max
Starting torque	30 Nm			
Req. operating power at pump shaft	0.24 kW			
Inlet pressure	flooded suction (up to 0,5bar)			

Tolerances according to SEEPEX standards.

Materials and executions

Installation	horizontal
Direction of rotation	counter clockwise (left)
Lantern - Design	with cover plates
Lantern - Material	EN-JL 1040 (gci-25)
Suction casing - Design	standard
Suction casing - Material	1.4408 / ASTM A351 grade CF8M
Pressure branch - Design	standard
Pressure branch - Material	1.4408 / ASTM A351 grade CF8M
Position of branch	position 1
Suction connection	G1½" DIN EN ISO 228-1
Pressure connection	G 1¼" DIN EN ISO 228-1
Joint - Design	pin joint with joint sleeve, grease filled
Joint - Material	standard, holding bands 1.4401
Joint - Universal joint sleeve: material	NBR - Perbunan
Coupling rod - Design	standard
Coupling rod - Material	1.7225 encapsulated
Rotor - Design	standard
Rotor - Material	1.4404 / AISI 316L
Stator - Design	standard
Stator - Material	NBR - Perbunan
Shaft sealing	mechanical seal
Code	GA - single acting mechanical seal
Shaft diameter	30 mm
Make	SEEPEX
Rotating/stationary seal face	SiC SiC
Elastomers	FPM
Spring	1.4571 / AISI 316Ti
Metal parts	1.4571 / AISI 316Ti
Type	GA Q1Q1 VGG

Casing - material	1.4408 / ASTM A351 grade CF8M
Casing - connection standard	ISO 228
Plug-in Shaft - Design	standard
Plug-in Shaft - Material	1.4404 / AISI 316L
Bolting - Design	completely stainless steel
Painting - Number of colors	two-color RAL colors
Painting - Painted components	color 1: pump, gearbox (and baseplate) color 2: electric motor
Painting - Color	RAL 5013 - Cobalt blue (2K)
Painting - Color 2	RAL 5010 - Gentian blue (2K)
Painting - Surface protection	std. surface protection C2 (NDFT 95 µm)

Drive

Type	Gear & Motor at freq. inv. (Inverter is not included)		
Make	Nord		
Model	SK015F-IEC80		
Mounting position	M1		
Ratio (i)	8,55		
	Norm	Min	Max
Speed	167 min ⁻¹	62 min ⁻¹	241 min ⁻¹
Motor speed	1424 min ⁻¹	526 min ⁻¹	2062 min ⁻¹
Frequency	50 Hz	18 Hz	72 Hz
Rated output			
Make	ABB		
Model	M3BP 80MLG 4		
Rated output	0.75 kW		
Rated speed	1424 min ⁻¹		
Starting	direct on frequency inverter		
Efficiency class	IE3		
Terminal box position acc. to supplier	not specified		
Cable entry position acc. to supplier	not specified		
Voltage	230/400 V		
Frequency	50Hz		
Enclosure	IP65		
Thermal class	F		
Winding protection	3 PTC - (w/o break contacts)		

The frequency inverter has to follow a linear U/f characteristic curve (constant torque).
It's essential to have a minimum overload capability of 150% for at least 60 seconds. (see technical data sheet)

Baseplate

Design	baseplate for block pump, design with side feet
Material	steel, painted
GPU Type Code	B-ST-LS
Chemical anchor bolts	4 pc. chemical anchor bolts M16x165 galv, steel.

Quality Assurance

Design	Test Report
Document Standard	DIN EN 10 204-2.2

Quality Assurance

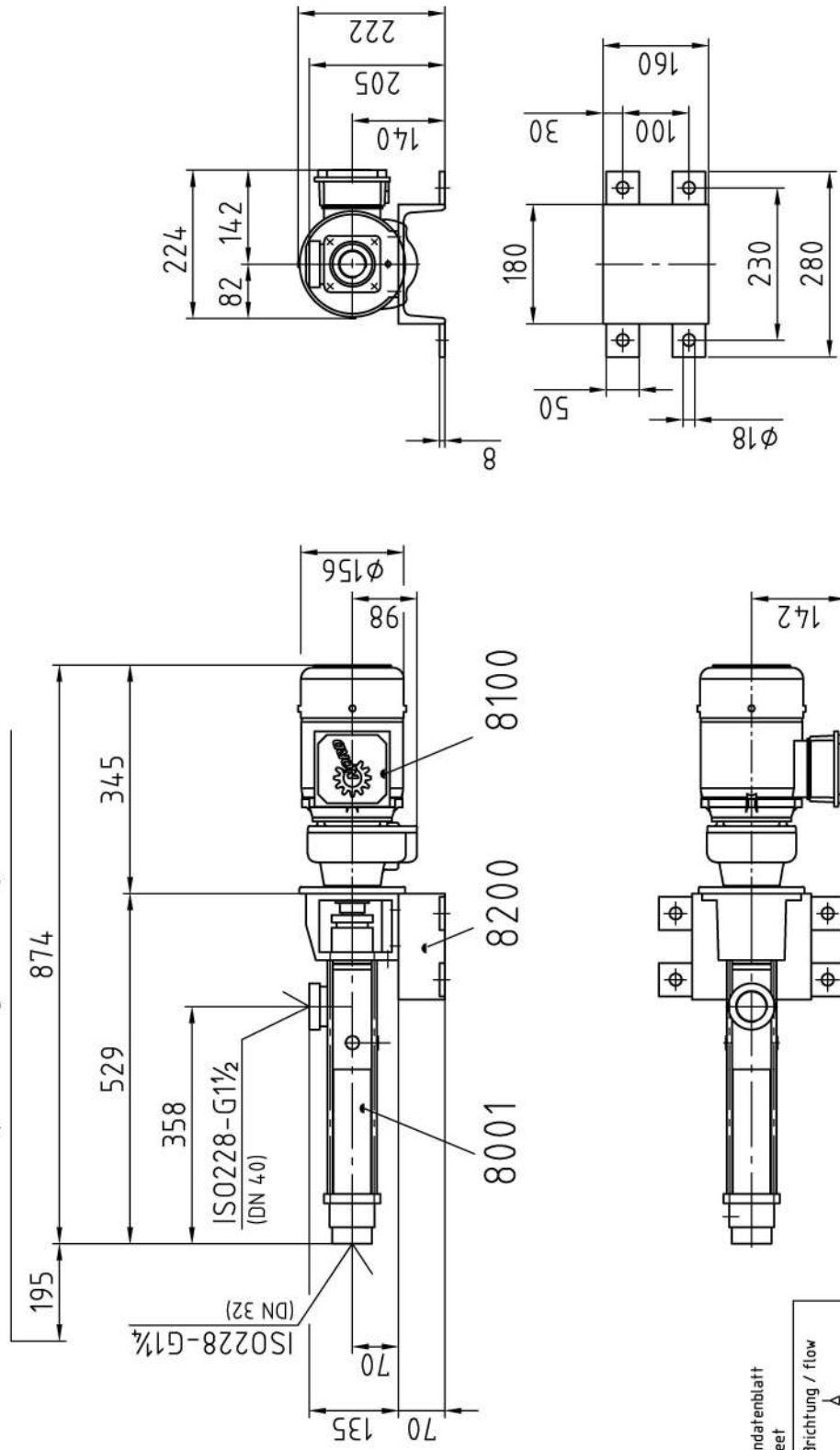
Design	B5 Hydraulic Performance Test
Document Standard	Inspection Certificate DIN EN 10 204-3.1
QA Testing Standard	VDMA 24284

Quality Assurance

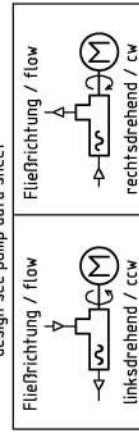
Design Document Standard	B16 Coating Control, Painting Inspection Inspection Certificate DIN EN 10 204-3.1
Quality Assurance Design	Quality Inspection Certificate for machines
Document Standard	DIN EN 10 204-2.1
Quality Assurance Design	B18 Review of Technical Documentation by arrangement or customer's specification

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Statorausbaumaß / space allowing disassembly of the stator



* Ausführung siehe Pumpendatenblatt
 * design see pump data sheet

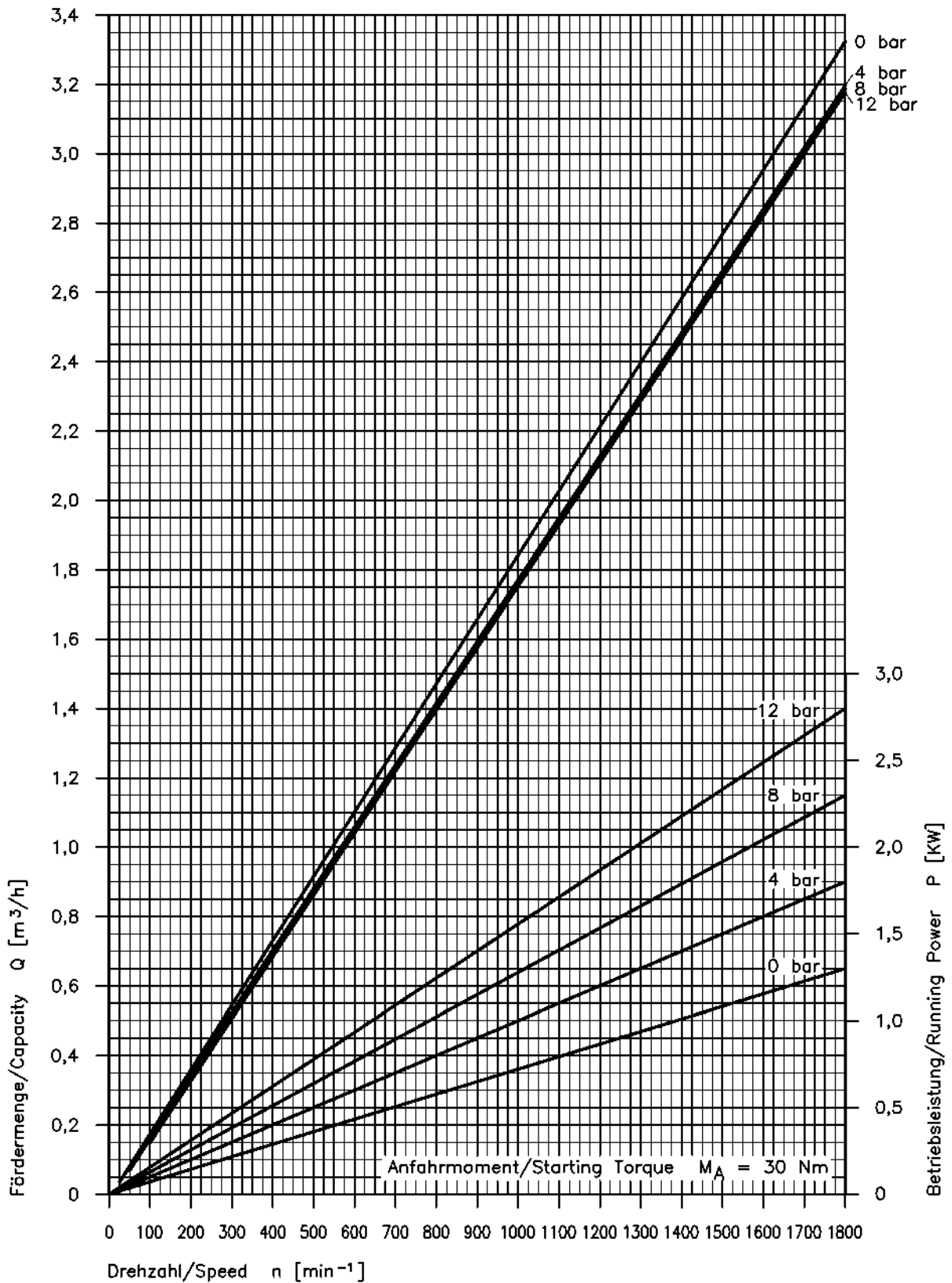


1	Grundplatte / baseplate:	8200							Var.: 801-200/M500-C-002	5
1	Antrieb / drive: SK01(5)F-80_H	8100								20
1	Pumpe / pump: BN 05-12 / 1-6L	8001								10
Stück Quant.	Bezeichnung Denomination	2011	Name/Name	Tag/Day	Werkstoff Material	Maßstab/Scale	Bemerkung Note	Gewicht/Weight	Bezeichnung/Denomination	Gewicht / kg
		Bearbeitet Drawn	tev	25.05.	EDV-Nr./EDP-No.	1:10	35 kg		Maßzeichnung dimensional drawing	Weight / kg
		Geprüft Checked	g0E	25.05.	114894.dwg				Zeichnungs-Nr./Drawing-no.	
									262-A18/M500-C-023B4	

SEEPEX.
ALL THINGS FLOW

Allgemeintoleranzen für Maße ohne einzelne Toleranzeintragung nach DIN ISO 2768-v / General tolerances for dimensions without specified tolerances acc. to DIN ISO 2768-v

Kennlinien/Characteristic Curves
Baugröße/Size
05-12



Werte bezogen auf Wasser 20°C ; Hinweise zur Antriebsauslegung siehe PER
Values based upon water 20°C ; For notes on drive selection refer to PER

01/02/2023

Item 20 ()

qty.: 2

Progressive cavity pump

BN 1-12

Application data

Conveyed product	HCL Solution
Flowability	very well flowable
Solids content	not specified
Size of solids	
Concentration	32%
Density	1.16 kg/dm ³
Product temperature	5°C - 35°C
pH value	unknown
Kind of operation	continuous
Operating hours	24 h/day
Location	indoor, dry atmosphere
Altitude of installation	up to 1000 m assumed
Surrounding temperature	normal (5-40 °C)

Performance data

	Capacity	Pressure	Speed	
	500 l/h	4.6 bar	152 min ⁻¹	min
	1077 l/h	4.6 bar	319 min ⁻¹	norm
	1200 l/h	4.6 bar	354 min ⁻¹	max
Starting torque	40 Nm			
Req. operating power at pump shaft	0.45 kW			
Inlet pressure	flooded suction (up to 0,5bar)			

Tolerances according to SEEPEX standards.

Materials and executions

Installation	horizontal
Direction of rotation	counter clockwise (left)
Lantern - Design	with cover plates
Lantern - Material	EN-JL 1040 (gci-25)
Suction casing - Design	standard
Suction casing - Material	EN-JL1040 (gci-25) Halar coated
Pressure branch - Design	standard
Pressure branch - Material	EN-JL1040 (gci-25) Halar coated
Position of branch	position 1
Suction connection	DN 50 PN 16, DIN EN 1092-2, Form B
Pressure connection	DN 40 PN 16, DIN EN 1092-2, Form B
Joint - Design	pin joint with joint sleeve, grease filled
Joint - Material	standard, holding bands 2.4819 / Alloy C-276
Joint - Universal joint sleeve: material	EPDM
Coupling rod - Design	standard
Coupling rod - Material	2.4610 / Hastelloy C-4
Rotor - Design	standard
Rotor - Material	2.4610 / Hastelloy C-4
Stator - Design	standard
Stator - Material	EPDM
Shaft sealing	mechanical seal
Code	GA - single acting mechanical seal
Shaft diameter	38 mm
Make	Burgmann
Rotating/stationary seal face	SiC SiC
Elastomers	EPDM
Spring	2.4610 / Hastelloy C-4
Metal parts	2.4610 / Hastelloy C-4
Type	MG1-G60 Q1Q1 EMM

Casing - material	2.4610 / Hastelloy C-4
Casing - connection standard	ISO 228
Plug-in Shaft - Design	standard
Plug-in Shaft - Material	2.4610 / Hastelloy C-4
Bolting - Design	completely stainless steel
Painting - Number of colors	two-color RAL colors
Painting - Painted components	color 1: pump, gearbox (and baseplate) color 2: electric motor
Painting - Color	RAL 5013 - Cobalt blue (2K)
Painting - Color 2	RAL 5010 - Gentian blue (2K)
Painting - Surface protection	std. surface protection C2 (NDFT 95 µm)

Drive

Type	Gear & Motor at freq. inv. (Inverter is not included)		
Make	Nord		
Model	SK015F-IEC90		
Mounting position	M1		
Ratio (i)	5,62		
	Norm	Min	Max
Speed	256 min ⁻¹	152 min ⁻¹	354 min ⁻¹
Motor speed	1437 min ⁻¹	852 min ⁻¹	1992 min ⁻¹
Frequency	50 Hz	30 Hz	69 Hz
Rated output			
Make	ABB		
Model	M3BP 90LC 4		
Rated output	1.1 kW		
Rated speed	1437 min ⁻¹		
Starting	direct on frequency inverter		
Efficiency class	IE3		
Terminal box position acc. to supplier	not specified		
Cable entry position acc. to supplier	not specified		
Voltage	230/400 V		
Frequency	50Hz		
Enclosure	IP65		
Thermal class	F		
Winding protection	3 PTC - (w/o break contacts)		

The frequency inverter has to follow a linear U/f characteristic curve (constant torque).
It's essential to have a minimum overload capability of 150% for at least 60 seconds. (see technical data sheet)

Baseplate

Design	baseplate for block pump, design with side feet
Material	steel, painted
GPU Type Code	B-ST-LS
Chemical anchor bolts	4 pc. chemical anchor bolts M16x165 galv, steel.

Quality Assurance

Design	Test Report
Document Standard	DIN EN 10 204-2.2

Quality Assurance

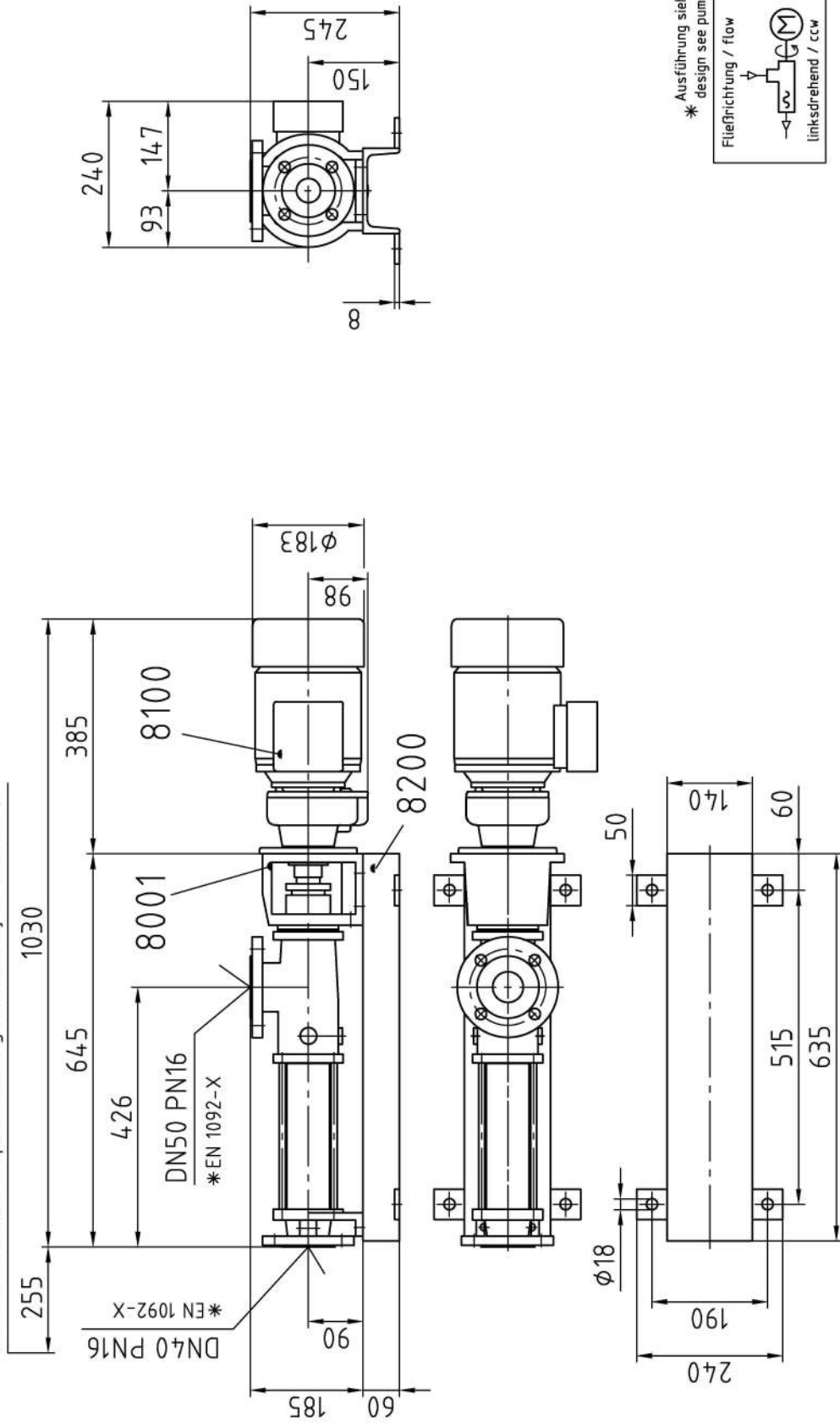
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Document Standard	Inspection Certificate DIN EN 10 204-3.1
QA Testing Standard	VDMA 24284

Quality Assurance

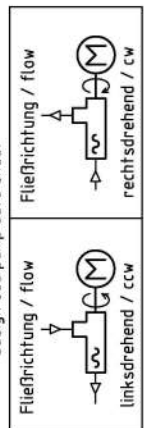
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Quality Assurance Design	Quality Inspection Certificate for machines
Document Standard	DIN EN 10 204-2.1
Quality Assurance Design	B18 Review of Technical Documentation by arrangement or customer's specification

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Statorausbaumaß / space allowing disassembly of the stator



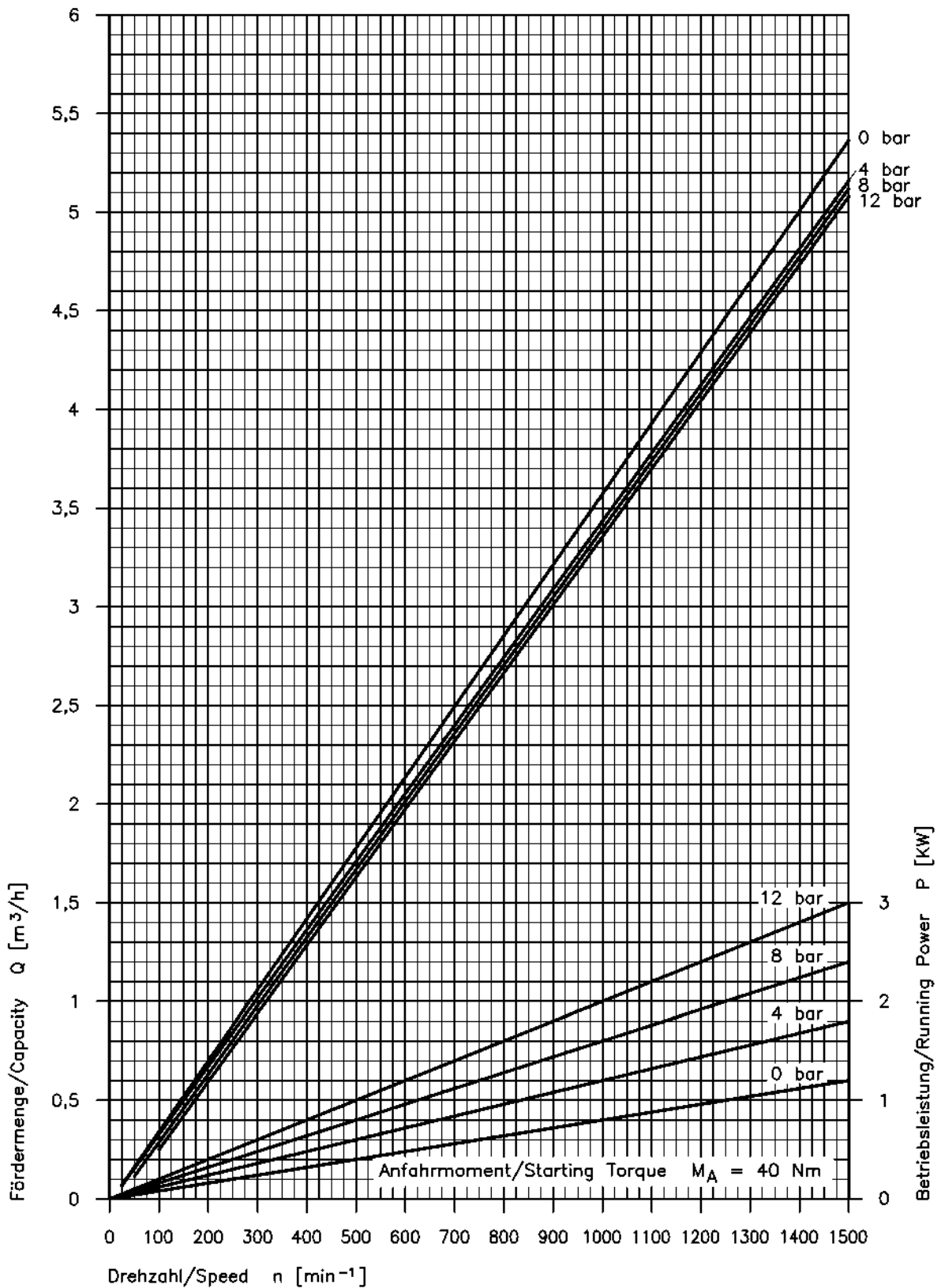
* Ausführung siehe Pumpendatenblatt
 * design see pump data sheet



1	Grundplatte / baseplate:	8200			Var.: 801-200/0010-C-002	11	
1	Antrieb / drive: SK01(5)F-90_H	8100				28	
1	Pumpe / pump: BN 1-12 / 2-6L	8001				21	
Stück Quant.	Bezeichnung Denomination	2011 Bearbeitet Drawn	Name/Name	Tag/Day	Werkstoff Material	Bemerkung Note	Bezeichnung/Denomination Maßzeichnung dimensional drawing
		goe		29.07.	Maßstab/Scale ◎ 1:10	Gewicht/Weight 60 kg	
		sbe		29.07.	EDV-Nr./EDP-No. 116327.dwg		Zeichnungs-Nr./Drawing-no. 262-A18/0010-C-023A4
Allgemeintoleranzen für Maße ohne einzelne Toleranzeintragung nach DIN ISO 2768-v / General tolerances for dimensions without specified tolerances acc. to DIN ISO 2768-v							

SEEPEX.
ALL THINGS FLOW

Kennlinien/Characteristic Curves
Baugröße/Size
1-12



Werte bezogen auf Wasser 20°C ; Hinweise zur Antriebsauslegung siehe PER
Values based upon water 20°C ; For notes on drive selection refer to PER

01/02/2023

Item 30 ()

qty.: 2

Progressive cavity pump

BN 05-12

Application data

Conveyed product	Caustic Solution
Flowability	well flowable
Solids content	without
Size of solids	not applicable
Concentration	50%
Density	1.5 kg/dm ³
Product temperature	5°C - 35°C
pH value	7
Kind of operation	continuous
Operating hours	24 h/day
Location	indoor, dry atmosphere
Altitude of installation	up to 1000 m assumed
Surrounding temperature	normal (5-40 °C)

Performance data

	Capacity	Pressure	Speed	
	100 l/h	4 bar	62 min ⁻¹	min
	504 l/h	4 bar	288 min ⁻¹	norm
	550 l/h	4 bar	314 min ⁻¹	max
Starting torque	30 Nm			
Req. operating power at pump shaft	0.31 kW			
Inlet pressure	flooded suction (up to 0,5bar)			

Tolerances according to SEEPEX standards.

Materials and executions

Installation	horizontal
Direction of rotation	counter clockwise (left)
Lantern - Design	with cover plates
Lantern - Material	EN-JL 1040 (gci-25)
Suction casing - Design	standard
Suction casing - Material	1.4408 / ASTM A351 grade CF8M
Pressure branch - Design	standard
Pressure branch - Material	1.4408 / ASTM A351 grade CF8M
Position of branch	position 1
Suction connection	G1½" DIN EN ISO 228-1
Pressure connection	G 1¼" DIN EN ISO 228-1
Joint - Design	pin joint with joint sleeve, grease filled
Joint - Material	standard, holding bands 1.4401
Joint - Universal joint sleeve: material	EPDM
Coupling rod - Design	standard
Coupling rod - Material	1.7225 encapsulated
Rotor - Design	standard
Rotor - Material	1.4404 / AISI 316L
Stator - Design	standard
Stator - Material	EPDM
Shaft sealing	mechanical seal
Code	GA - single acting mechanical seal
Shaft diameter	30 mm
Make	SEEPEX
Rotating/stationary seal face	SiC SiC
Elastomers	EPDM
Spring	1.4571 / AISI 316Ti
Metal parts	1.4571 / AISI 316Ti
Type	GA Q1Q1 EGG

Casing - material	1.4408 / ASTM A351 grade CF8M
Casing - connection standard	ISO 228
Plug-in Shaft - Design	standard
Plug-in Shaft - Material	1.4404 / AISI 316L
Bolting - Design	completely stainless steel
Painting - Number of colors	two-color RAL colors
Painting - Painted components	color 1: pump, gearbox (and baseplate) color 2: electric motor
Painting - Color	RAL 5013 - Cobalt blue (2K)
Painting - Color 2	RAL 5010 - Gentian blue (2K)
Painting - Surface protection	std. surface protection C2 (NDFT 95 µm)

Drive

Type	Gear & Motor at freq. inv. (Inverter is not included)		
Make	Nord		
Model	SK015F-IEC80		
Mounting position	M1		
Ratio (i)	7,15		
	Norm	Min	Max
Speed	199 min ⁻¹	62 min ⁻¹	314 min ⁻¹
Motor speed	1424 min ⁻¹	440 min ⁻¹	2247 min ⁻¹
Frequency	50 Hz	15 Hz	79 Hz
Rated output			
Make	ABB		
Model	M3BP 80MLG 4		
Rated output	0.75 kW		
Rated speed	1424 min ⁻¹		
Starting	direct on frequency inverter		
Efficiency class	IE3		
Terminal box position acc. to supplier	not specified		
Cable entry position acc. to supplier	not specified		
Voltage	230/400 V		
Frequency	50Hz		
Enclosure	IP65		
Thermal class	F		
Winding protection	3 PTC - (w/o break contacts)		

The frequency inverter has to follow a linear U/f characteristic curve (constant torque).
It's essential to have a minimum overload capability of 150% for at least 60 seconds. (see technical data sheet)

Baseplate

Design	baseplate for block pump, design with side feet
Material	steel, painted
GPU Type Code	B-ST-LS
Chemical anchor bolts	4 pc. chemical anchor bolts M16x165 galv, steel.

Quality Assurance

Design	Test Report
Document Standard	DIN EN 10 204-2.2

Quality Assurance

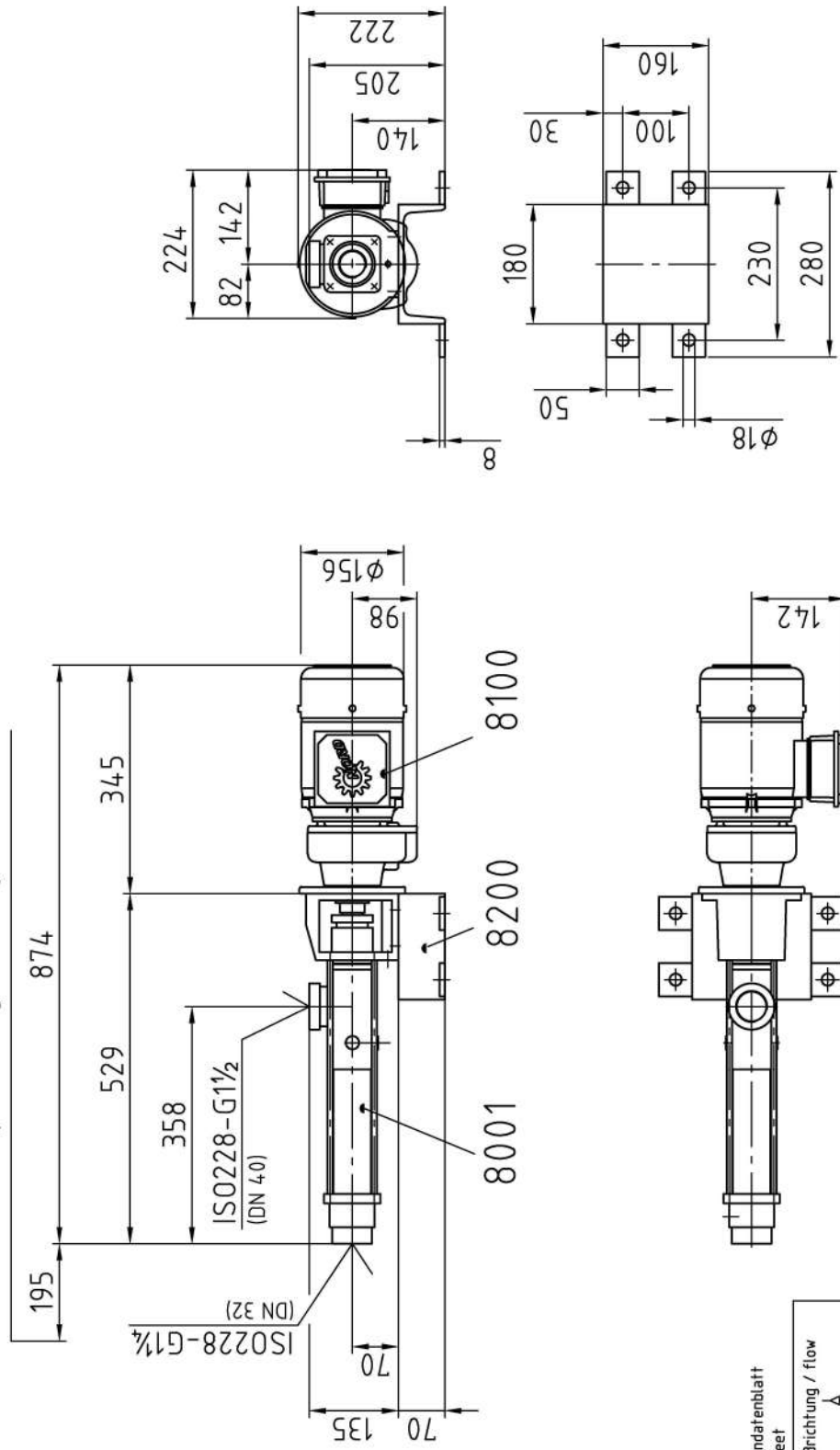
Design	B5 Hydraulic Performance Test
Document Standard	Inspection Certificate DIN EN 10 204-3.1
QA Testing Standard	VDMA 24284

Quality Assurance

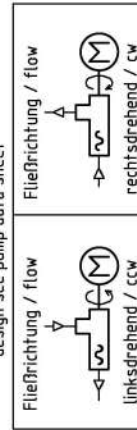
Design Document Standard	B16 Coating Control, Painting Inspection Inspection Certificate DIN EN 10 204-3.1
Quality Assurance Design	Quality Inspection Certificate for machines
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Statorausbaumaß / space allowing disassembly of the stator



* Ausführung siehe Pumpendatenblatt
 * design see pump data sheet

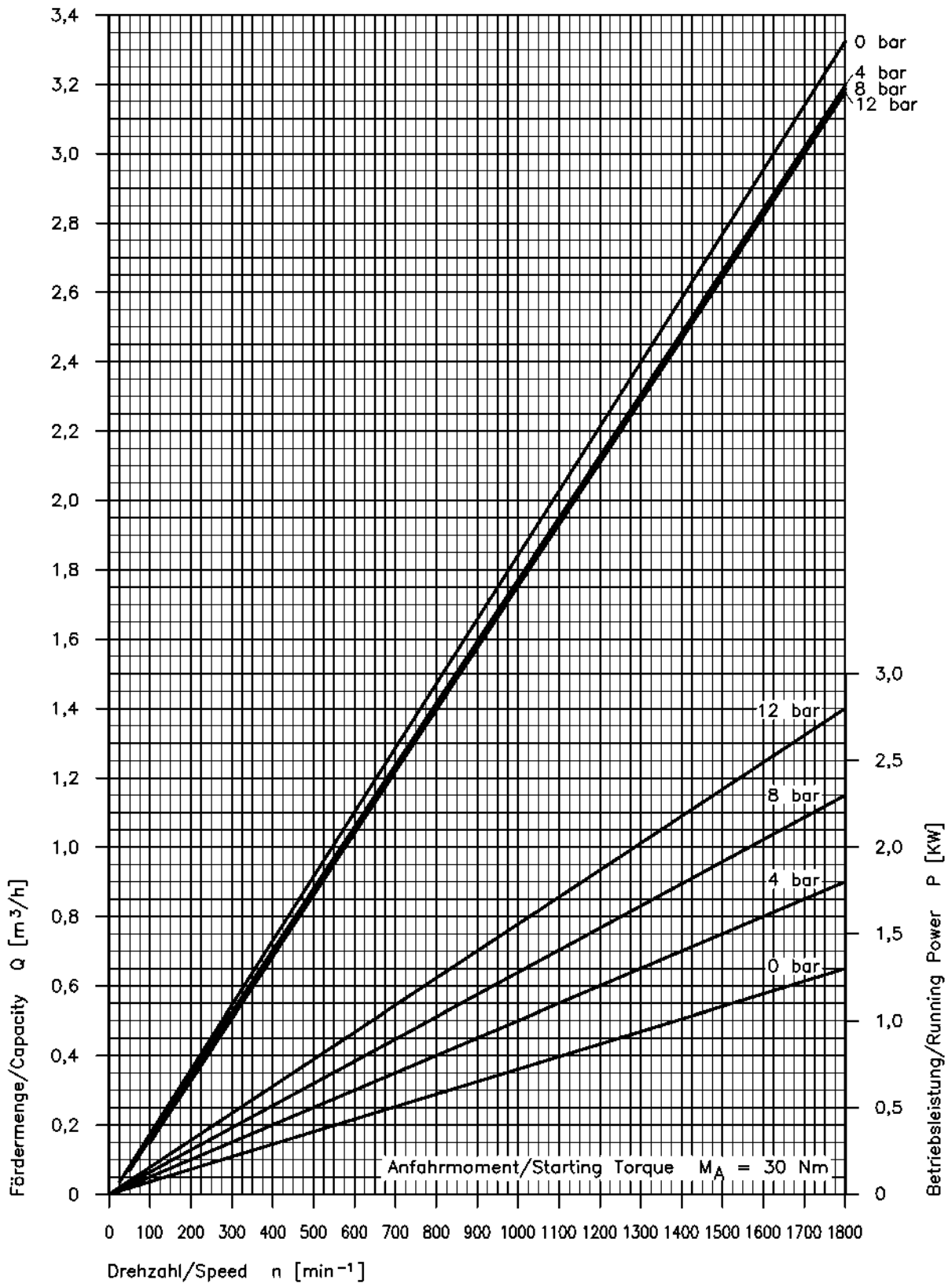


1	Grundplatte / baseplate:	8200	Var.: 801-200/M500-C-002	5				
1	Antrieb / drive: SK01(5)F-80_H	8100		20				
1	Pumpe / pump: BN 05-12 / 1-6L	8001		10				
Stück Quant.	Bezeichnung Denomination	Pos. Item	Tag/Day	Werkstoff Material	Maßstab/Scale	Bemerkung Note	Gewicht/Weight	Bezeichnung/Denomination Maßzeichnung dimensional drawing
		2011	25.05.	EDV-Nr./EDP-No.	1:10	35 kg		Zeichnungs-Nr./Drawing-no.
		Bearbeitet Drawn	25.05.	114894.dwg				262-A18/M500-C-023B4
		Geprüft Checked	25.05.					

SEEPEX.
ALL THINGS FLOW

Allgemeintoleranzen für Maße ohne einzelne Toleranzeintragung nach DIN ISO 2768-v / General tolerances for dimensions without specified tolerances acc. to DIN ISO 2768-v

Kennlinien/Characteristic Curves
 Baugröße/Size
05-12



Werte bezogen auf Wasser 20°C ; Hinweise zur Antriebsauslegung siehe PER
 Values based upon water 20°C ; For notes on drive selection refer to PER