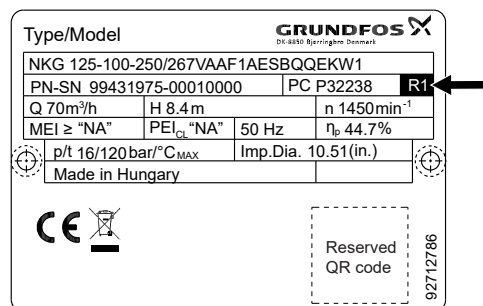


## 58. NBG/E, NKG/E – Range 1

### Where does NBG/E, NKG/E – Range 1 fit in the overall picture of end-suction

The pump range can be identified via this field on the nameplate as shown below.

	Range		
	IEC motor <sup>162)</sup>		NEMA motor <sup>163)</sup>
	1	2	6
NB(E)	X		X
NBG(E)	<b>X</b>		
NBS(E)			X
NK(E)	X	X	X
NKG(E)	<b>X</b>		



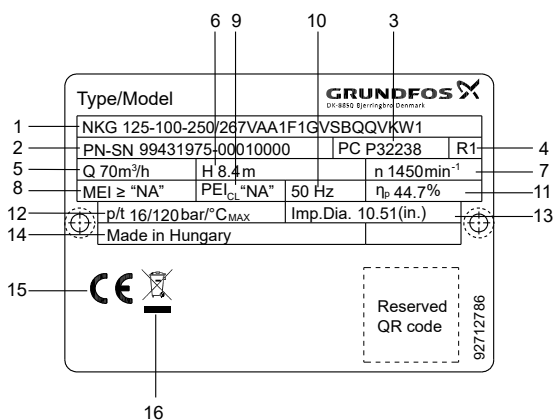
TM084148

<sup>16</sup> The motors fitted with the pumps are according to the IEC standard (International Electrotechnical Commission) for frame size, dimensions and connecting interfaces (flange and 2) shaft).

<sup>16</sup> The motors fitted with the pumps are according to the NEMA standard (National Electrical Manufacturers Association - USA) for frame size, dimensions and connecting interfaces 3) (flange and shaft).

### How to search correct service parts

To search correct service parts, the information on the pump nameplate is vital. The pump nameplate contains all data required for this.



TM082250

Example of NKG nameplate

Pos.	Description
1	Type designation
2	Identification code
	99431975 Product number
	00010000 Serial number
3	Production code - production site, year and week
4	Range identification (service range code)

These data above should be referenced whenever any replacement kit or spare is ordered.

When ordering replacement impellers, additional information like duty point and impeller trim (13) are required data.

**NOTE!** This Service Kit Catalogue is an extension to the Service Kit Catalogue for standard products NBG/E and NKG/E - Range 1. Service components/logistics/production topics mentioned in this Service Kit Catalogue are unique for the Super Vortex impeller design. All other service components/logistics/production topics are shared with the NBG/E, NKG/E range 1.

### Service parts shared with standard products NBG/E and NKG/E

- Kit - Pump housing without wear ring
- Kit - Pump housing machined for wear ring, cast iron low/high pressure (variant)
- Kit - Loose flanges
- Kit - Standard bearing bracket
- Kit - Heavy Duty bearing bracket, re-greaseable
- Kit - Heavy Duty bearing bracket, oil-lubrication
- Kit - Bearing bracket foot
- Kit/spare/bulk - Standard coupling
- Kit - Shaft guard
- Kit - Coupling guard, standard coupling
- Kit - Spacer guard
- Kit - Coupling guard, spacer coupling
- Kit - Foot for spacer coupling
- Spare - Base frame, standard coupling
- Spare - Base frame, spacer coupling
- Spare/bulk - O-rings

## Type key, NBG, NBGE

Example 1: NBG 100-65-200/219VAAEF2KESBQQEKX4

Example 2: NBGE 200-150-315.2/317ACAEF3KFSDAQFYW1

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example 1	NBG	100	-65	-200	/219	V	A		AE	F	2	K	E	S	BQQE	K	X	4
Example 2	NBGE	200	-150	-315.2	/317		A	C	AE	F	3	K	F	S	DAQF	Y	W	1

Pos.	Explanation
1	Type range
2	Nominal diameter of inlet port (DN)
3	Nominal diameter of outlet port (DN)
4	Nominal impeller diameter [mm]
5	Actual impeller diameter [mm]
<b>Impeller type</b>	
	'blank': Closed impeller, cylindrical trim. If one dimension is shown, the impeller has a cylindrical trim, for example 219
6	'blank': Closed impeller, conical trim. If two dimensions are shown, the impeller has a conical trim, for example 160-142 S: Special open impeller V: Super Vortex impeller
<b>Hydraulic version</b>	
	A: 1st version
7	B: 2nd version C: 3rd version D: 4th version
<b>Sensor/motor version</b>	
	'blank': Pump without sensor
	C: Without built-in sensor, one cable and one pressure sensor are supplied with the pump
8	S: Pump with built-in differential-pressure sensor, Series 2000 G: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with Grounding ring: Non drive-end H: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with hybrid bearing (HYB): Non drive-end I: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with insulated bearing: Non drive-end
<b>Code for pump version; the codes may be combined</b>	
	A: Basic version
	B: Oversize motor
	C: Without motor
9	D: Pump housing with feet (+E): With ATEX approval, certificate or test report, the second character of the code for pump version is an E F: Design with base frame (+S): With support blocks, the second character of the pump version code is an S X: Special version; used in case of further customisation than already listed
<b>Code for pipe connection</b>	
	E: Table E flange
10	F: DIN flange G: ANSI flange J: JIS flange
<b>Flange pressure rating (PN - rated pressure)</b>	
	1: 10 bar
11	2: 16 bar 3: 25 bar 4: 40 bar 5: Other pressure rating

Pos.	Explanation				
	<b>Code for materials</b>				
	<b>Code</b>	<b>Pump housing</b>	<b>Impeller</b>	<b>Wear ring</b>	<b>Shaft</b>
	A	EN-GJL-250	EN-GJL-200	Bronze/brass	1.4301/1.4308
	B	EN-GJL-250	Bronze CuSn10	Bronze/brass	1.4301/1.4308
	C	EN-GJL-250	EN-GJL-200	Bronze/brass	1.4401
	D	EN-GJL-250	Bronze CuSn10	Bronze/brass	1.4401
	E	EN-GJL-250	EN-GJL-200	EN-GJL-250	1.4301/1.4308
	F	EN-GJL-250	Bronze CuSn10	EN-GJL-250	1.4301/1.4308
	G	EN-GJL-250	EN-GJL-200	EN-GJL-250	1.4401
	H	EN-GJL-250	Bronze CuSn10	EN-GJL-250	1.4401
	I	1.4408	1.4408	1.4517	1.4462
	J	1.4408	1.4408	Carbon-graphite-filled PTFE (Graflon®)	1.4462
12	K	1.4408	1.4408	1.4517	1.4401
	L	1.4517	1.4517	1.4517	1.4462
	M	1.4408	1.4517	1.4517	1.4401
	N	1.4408	1.4408	Carbon-graphite-filled PTFE (Graflon®)	1.4401
	P	1.4408	1.4517	Carbon-graphite-filled PTFE (Graflon®)	1.4401
	R	1.4517	1.4517	Carbon-graphite-filled PTFE (Graflon®)	1.4462
	S	EN-GJL-250	1.4408	Bronze/brass	1.4401
	T	EN-GJL-250	1.4517	Bronze/brass	1.4462
	U	1.4408	1.4517	1.4517	1.4462
	W	1.4408	1.4517	Carbon-graphite-filled PTFE (Graflon®)	1.4462
	Z	1.4469	1.4469	1.4410	1.4410
	X	Special version			
	<b>Rubber parts in pump</b>				
	E: EPDM				
	F: FXM (Fluoraz®)				
13	K: FFKM (Kalrez®)				
	M: FEPS (PTFE-sheathed silicone O-ring)				
	O: HNBR				
	V: FKM (Viton®)				
14	<b>Shaft seal arrangement</b>				
	S: Single seal				
15	<b>Shaft seal in pump</b>				
	Letter code for mechanical shaft seal and shaft seal rubber parts. See Letter codes for shaft seals.				
16	Code for rated motor power [kW]. See Codes for rated motor power.				
17	Code for phase and voltage [V] or other information. See Codes for phase and voltage or other information.				
18	Code for speed variant [rpm]. See Codes for speed variant.				

**Example 1: NBG**

**100-65-200/219VAAEF2KESBQQEKX4** shows an NBG 100-65-200 pump with these characteristics:

- Super Vortex impeller
- hydraulic version A
- basic version
- with ATEX approval, certificate or report
- DIN flange to EN 1092-2 pipe connection
- 16 bar flange pressure rating
- stainless steel pump housing, EN 1.4408
- stainless steel impeller, EN 1.4408
- stainless steel wear ring, EN 1.4517
- stainless steel shaft, EN 1.4401
- EPDM O-rings for pump cover
- single shaft seal arrangement
- BQQE shaft seal
- 4 kW (3.7 hp) motor, US DOE regulated motor, 4-pole, 60 Hz.

**Example 2: NBGE**

**200-150-315.2/317ACAIEF3KFSDAQFYW1** shows an NBGE 200-150-315.2 pump with these characteristics:

- 317 mm closed impeller, cylindrical trim
- hydraulic version A
- without built-in sensor, one cable and one pressure sensor are supplied with the pump.
- pump with ATEX approval
- DIN flange to EN 1092-2 pipe connection
- 25 bar flange pressure rating
- stainless steel pump housing, EN 1.4408
- stainless steel impeller, EN 1.4408
- stainless steel wear ring, EN 1.4517
- stainless steel shaft, EN 1.4401
- FXM O-rings for pump cover
- single shaft seal arrangement
- DAQF shaft seal
- motor size outside DOE scope, not for sale in North America, 2-pole, 50 Hz.

**Related information**

*Letter codes for shaft seals*

*Codes for rated motor power*

*Codes for phase and voltage or other information*

*Codes for speed variant*

## Type key, NKG, NKGE

**Example 1: NKG 100-65-200/219VAZ1F2KESBQQEXX4**

**Example 2: NKGE 125-100-160/160-140BSA1F2AESBAQERW1**

**Example 3: NKGE 200-150-315.2/317ACA1F3AESDAQFYW4**

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example 1	NKG	100	-65	-200	/219	V	A		Z1	F	2	K	E	S	BQQE	X	X	4
Example 2	NKGE	125	-100	-160	/160-140		B	S	A1	F	2	A	E	S	BAQE	R	W	1
Example 3	NKGE	200	-150	-315.2	/317		A	C	A1	F	3	A	E	S	DAQF	Y	W	4

Pos.	Explanation
1	Type range
2	Nominal diameter of inlet port (DN)
3	Nominal diameter of outlet port (DN)
4	Nominal impeller diameter [mm]
5	Actual impeller diameter [mm]
<b>Impeller type</b>	
	'blank': Closed impeller, cylindrical trim. If one dimension is shown, the impeller has a cylindrical trim, for example 219
6	'blank': Closed impeller, conical trim. If two dimensions are shown, the impeller has a conical trim, for example 160-140 S: Special open impeller V: Super vortex impeller
<b>Hydraulic version</b>	
	A: 1st version
7	B: 2nd version C: 3rd version D: 4th version
<b>Sensor/motor version</b>	
	'blank': Pump without sensor
	C: Without built-in sensor, one cable and one pressure sensor are supplied with the pump.
8	S: Pump with built-in differential-pressure sensor, Series 2000 G: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with Grounding ring: Non drive-end H: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with hybrid bearing (HYB): Non drive-end I: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with insulated bearing: Non drive-end
<b>Code for pump version; the codes may be combined</b>	
	A1: Basic version, grease-lubricated standard bearing design, standard coupling
	A2: Basic version, grease-lubricated standard bearing design, spacer coupling
	B: Oversize motor
	(+E): With ATEX approval, certificate or test report, the second character of the pump version code is an E
	G1: Grease-lubricated heavy-duty bearing design, standard coupling
	G2: Grease-lubricated heavy-duty bearing design, spacer coupling
	H1: Oil-lubricated heavy-duty bearing design, standard coupling
	H2: Oil-lubricated heavy-duty bearing design, spacer coupling
9	I1: Pump without motor, grease-lubricated standard bearing design, standard coupling I2: Pump without motor, grease-lubricated standard bearing design, spacer coupling J1: Pump without motor, grease-lubricated heavy-duty bearing design, standard coupling J2: Pump without motor, grease-lubricated heavy-duty bearing design, spacer coupling K1: Pump without motor, oil-lubricated heavy-duty bearing design, standard coupling K2: Pump without motor, oil-lubricated heavy-duty bearing design, spacer coupling Y1: Bare shaft pump, grease-lubricated standard bearing design W1: Bare shaft pump, grease-lubricated heavy-duty bearing design Z1: Bare shaft pump, oil-lubricated heavy-duty bearing design X: Special version; used in case of further customisation than already listed
<b>Pipe connection</b>	
	E: Table E flange
10	F: DIN flange G: ANSI flange J: JIS flange
<b>Flange pressure rating (PN - rated pressure)</b>	
	1: 10 bar
11	2: 16 bar 3: 25 bar 4: 40 bar 5: Other pressure rating

Pos.	Explanation			
	<b>Code for materials</b>			
	<b>Code</b>	<b>Pump housing</b>	<b>Impeller</b>	<b>Wear ring</b>
	A	EN-GJL-250	EN-GJL-200	Bronze/brass
	B	EN-GJL-250	Bronze CuSn10	Bronze/brass
	C	EN-GJL-250	EN-GJL-200	Bronze/brass
	D	EN-GJL-250	Bronze CuSn10	Bronze/brass
	E	EN-GJL-250	EN-GJL-200	EN-GJL-250
	F	EN-GJL-250	Bronze CuSn10	EN-GJL-250
	G	EN-GJL-250	EN-GJL-200	EN-GJL-250
	H	EN-GJL-250	Bronze CuSn10	EN-GJL-250
	I	1.4408	1.4408	1.4517
	J	1.4408	1.4408	Carbon-graphite-filled PTFE (Graflon®)
12	K	1.4408	1.4408	1.4517
	L	1.4517	1.4517	1.4517
	M	1.4408	1.4517	1.4517
	N	1.4408	1.4408	Carbon-graphite-filled PTFE (Graflon®)
	P	1.4408	1.4517	Carbon-graphite-filled PTFE (Graflon®)
	R	1.4517	1.4517	Carbon-graphite-filled PTFE (Graflon®)
	S	EN-GJL-250	1.4408	Bronze/brass
	T	EN-GJL-250	1.4517	Bronze/brass
	U	1.4408	1.4517	1.4517
	W	1.4408	1.4517	Carbon-graphite-filled PTFE (Graflon®)
	Z	1.4469	1.4469	1.4410
	X	Special version		
	<b>Rubber parts in pump</b>			
	E: EE			
	F: FF			
	G: FE			
	H: KE			
	I: KM			
	J: KV			
	K: KK			
	M: MN			
	N: ME			
	O: OO			
	V: VV			
13	<ul style="list-style-type: none"> <li>• The first letter indicates material of elastomer between pump housing and cover, and elastomer between cover and split cover.</li> <li>• The second letter indicates material of elastomer between split cover and seal housing.</li> </ul> See the material description in the table below.			
	<b>Code</b>	<b>Material description</b>		
	E	EPDM		
	F	FXM (Fluoraz®)		
	K	FFKM (Kalrez®)		
	M	FEPS (PTFE-sheathed silicone O-ring)		
	O	HNBR		
	V	FKM (Viton®)		
	<b>Shaft seal arrangement</b>			
	B: Stuffing box			
	C: Cartridge seal, single			
14	D: Cartridge seal, double			
	O: Back-to-back, double seal			
	P: Tandem, double seal			
	S: Single seal			

Pos.	Explanation
	<b>Shaft seal(s) in pump</b>
	Letter or digit code for mechanical shaft seal and shaft seal rubber parts
	<ul style="list-style-type: none"><li>• 4 letters: Single mechanical shaft seal, such as BQQE, or single cartridge seal, such as HBQV</li></ul>
15	<ul style="list-style-type: none"><li>• 4 digits:<ul style="list-style-type: none"><li>- double seal solution; example 2716, where 27 is DQQV, primary seal, and 16 is BQQV, secondary seal;</li><li>- double cartridge seal; example 5150, where 51 is HQQU, primary seal, and 50 is HBQV, secondary seal</li></ul></li></ul>
	The relation between letters and digits of the shaft seals is described in Codes for shaft seals.
16	Code for rated motor power [kW]. See Codes for rated motor power.
17	Code for phase and voltage [V] or other information. See Codes for phase and voltage or other information.
18	Code for speed variant [rpm]. See Codes for speed variant.

**Example 1: NKG 100-65-200/219VAZ1F2KESBQQEXX4**

shows an NKG 100-65-200 pump with these characteristics:

- Super Vortex impeller
- hydraulic version A
- bare shaft pump, oil-lubricated heavy-duty bearing design
- DIN flange to EN 1092-2 pipe connection
- 16 bar flange pressure rating
- stainless steel pump housing, EN 1.4408
- stainless steel impeller, EN 1.4408
- stainless steel wear ring, EN 1.4517
- stainless steel shaft, EN 1.4401
- EPDM O-rings for pump cover and seal cover
- single shaft seal arrangement
- BQQE shaft seal
- bare shaft pump without motor, for 4-pole operation, 60 Hz.

**Example 2: NKGE**

**125-100-160/160-140BSA1F2AESBAQERW1** shows an NKGE 125-100-160 pump with these characteristics:

- 160-140 mm closed impeller, conical trim
- hydraulic version B
- with built-in differential-pressure sensor
- grease-lubricated standard bearing design
- standard coupling
- DIN flange to EN 1092-2 pipe connection
- 16 bar flange pressure rating
- cast iron pump housing, EN-GJL-250
- cast iron impeller, EN-GJL-200
- bronze/brass wear ring
- stainless steel shaft, EN 1.4021/1.4034
- EPDM O-rings for pump cover and seal cover
- single shaft seal arrangement
- BAQE shaft seal
- 30 kW motor, not for sale in North America, 2-pole, 50 Hz.

**Example 3: NKGE**

**200-150-315.2/317ACA1F3AESDAQFYW4** shows an NKG 200-150-315.2 pump with these characteristics:

- 317 mm closed impeller, cylindrical trim
- hydraulic version A
- without built-in sensor, one cable and one pressure sensor are supplied with the pump.
- grease-lubricated standard bearing design
- standard coupling
- DIN flange to EN 1092-2 pipe connection
- 25 bar flange pressure rating
- cast iron pump housing, EN-GJL-250
- cast iron impeller, EN-GJL-200
- bronze/brass wear ring
- stainless steel shaft, EN 1.4021/1.4034
- EPDM O-rings for pump cover and seal cover
- single shaft seal arrangement
- DAQF shaft seal
- motor size outside DOE scope, not for sale in North America, 4-pole, 60 Hz.

**Related information**

[Letter codes for shaft seals](#)

[Codes for rated motor power](#)

[Codes for phase and voltage or other information](#)

[Codes for speed variant](#)



## Codes for shaft seals

The digits are only used for double shaft seal solutions.

Digits	Letters	Description
10	BAQE	Single mechanical shaft seal
12	BBQE	Single mechanical shaft seal
13	BBQV	Single mechanical shaft seal
15	BQQE	Single mechanical shaft seal
16	BQQV	Single mechanical shaft seal
19	AQAE	Single mechanical shaft seal
20	AQAV	Single mechanical shaft seal
21	AQQE	Single mechanical shaft seal
22	AQQV	Single mechanical shaft seal
23	AQQX	Single mechanical shaft seal
24	AQKQ	Single mechanical shaft seal
25	DAQF	Single mechanical shaft seal
26	DQQE	Single mechanical shaft seal
27	DQQV	Single mechanical shaft seal
28	DQQX	Single mechanical shaft seal
29	DQKQ	Single mechanical shaft seal
50	HBQV	Cartridge seal
51	HQQU	Cartridge seal
52	HAQK	Cartridge seal
	SNEA	Stuffing box
	SNEB	Stuffing box
	SNEC	Stuffing box
	SNED	Stuffing box
	SNOA	Stuffing box
	SNOB	Stuffing box
	SNOG	Stuffing box
	SNOD	Stuffing box
	SNFA	Stuffing box
	SNFB	Stuffing box
	SNFC	Stuffing box
	SNFD	Stuffing box

## Letter codes for shaft seals

Pos. 14 in NBS type key example.

Pos. 14 in NK type key example.

Pos. 14 in NB type key example.

Pos. 14 in NK, NKE, NKG, NKGE type key example.

Pos. 14 in NB, NBE, NK, NKE type key example.

Pos. 15 in NBG, NBGE, NKG, NKGE type key example.

Pos. 15 in NB, NBG type key example.

Pos. 15 in NB, NBE, NBG, NBGE type key example.

Pos. 15 in NK, NKG type key example.

Code	Description	Explanation
B	Shaft seal type	A: O-ring seal with fixed driver B: Rubber bellows seal D: O-ring seal, balanced H: Cartridge seal, balanced
Q	Material of rotating seal face	A: Carbon, metal-impregnated with antimony which is not approved for potable water B: Carbon, resin-impregnated Q: Silicon carbide
Q	Material of stationary seal	A: Carbon, metal-impregnated with antimony which is not approved for potable water Q: Silicon carbide
E	Material of secondary seal and other rubber and composite parts, except the wear ring	E: EPDM V: FKM (Viton®) F: FXM (Fluoraz®) K: FFKM (Kalrez®) X: HNBR U: Dynamic O-rings in FFKM and static O-rings in PTFE

For a thorough description of shaft seal types and materials, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858".

## Letter codes for stuffing boxes

Example: SNEA

Code	Description	Explanation
S	Stuffing box type	S: Packing type stuffing box
N	Cooling method	N: Uncooled stuffing box
E	Barrier liquid	E: With internal barrier liquid F: With external barrier liquid O: Without barrier liquid
A	Material	A: PTFE-impregnated fibre packing rings (Buraflon®) and EPDM O-rings in the pump housing B: Graphite-PTFE compound packing rings (Thermoflon®) and EPDM O-ring in the pump housing C: PTFE-impregnated fibre packing rings (Buraflon®) and FKM O-ring in the pump housing D: Graphite-PTFE compound packing rings (Thermoflon®) and FKM O-ring in the pump housing

For a thorough description of stuffing boxes and materials, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858".

## Codes for rated motor power

- Pos. 16 in NB, NBG type key example.  
 Pos. 16 in NB, NBE, NBG, NBGE type key example.  
 Pos. 16 in NK, NKG type key example.  
 Pos. 16 in NBG, NBGE, NKG, NKGE type key example.  
 Pos. 12 in TP, TPD type key example.  
 Pos. 15 in NB, NBE, NK, NKE type key example.  
 Pos. 15 in NBS type key example.  
 Pos. 15 in NB type key example.  
 Pos. 15 in NK type key example.  
 Pos. 15 in NK, NKE, NKG, NKGE type key example.

Code	Description	
	[hp]	[kW]
A	0.16	0.12
B	0.25	0.18
C	0.33	0.25
D	0.5	0.37
E	0.75	0.55
F	1	0.75
G	1.5	1.1
H	2	1.5
I	3	2.2
J	4	3
K	5 (5.5 <sup>164</sup> )	3.7 (4 <sup>164</sup> )
L	7.5	5.5
M	10	7.5
N	15	11
O	20	15
P	25	18.5
Q	30	22
R	40	30
S	50	37
T	60	45
U	75	55
V	100	75
W	125	90
X	Bare shaft pump	
Y	> 200 <sup>165</sup>	> 150 <sup>165</sup>
1	150	110
2	175	132
3	200	150
4	215 <sup>166</sup>	160 <sup>166</sup>
5	250 <sup>166</sup>	185 <sup>166</sup>

<sup>16</sup> Value in bracket is for the standard IEC motor size. Value outside bracket is for the <sup>4</sup> motor size according to NEMA standards.

<sup>16</sup> Used for pumps where the pump shaft input power exceeds 200 hp (150 kW) and is <sup>5</sup> not regulated under the DOE pump rule.

<sup>16</sup> Special cases with power sizes above 200 hp (150 kW) which are still regulated under the DOE pump rule. For example: Pump has a P2 value of 198 hp (147.6 kW) <sup>6</sup> in its duty point (in DOE scope) but customer wants the 215 hp (160 kW) motor instead of the 200 hp (150 kW). The pump is in scope of the DOE regulation and requires a PEI value and a motor code.

## Codes for phase and voltage or other information

- Pos. 17 in NB, NBG type key example.  
 Pos. 17 in NB, NBE, NBG, NBGE type key example.  
 Pos. 17 in NK, NKG type key example.  
 Pos. 17 in NBG, NBGE, NKG, NKGE type key example.  
 Pos. 13 in TP, TPD type key example.  
 Pos. 16 in NBS type key example.  
 Pos. 16 in NB type key example.  
 Pos. 16 in NK type key example.  
 Pos. 16 in NK, NKE, NKG, NKGE type key example.  
 Pos. 16 in NB, NBE, NK, NKE type key example.

Code	Description
A	E-motor (ECM <sup>167</sup> ), 1 x 200-240 V
B	E-motor (ECM <sup>167</sup> ), 3 x 200-240 V
C	E-motor (ECM <sup>167</sup> ), 3 x 440-480 V
D	E-motor (ECM <sup>167</sup> ), 3 x 380-500 V
W	Not for sale in North America
X	No motor or US DOE regulated motor (CC marked motor)
Y	Out of DOE scope
Z	E-motor, asynchronous motor

<sup>16</sup> ECM: Electronically Commutated Motor.

<sup>7</sup>)

## Codes for speed variant

- Pos. 18 in NB, NBG type key example.  
 Pos. 18 in NB, NBE, NBG, NBGE type key example.  
 Pos. 18 in NK, NKG type key example.  
 Pos. 18 in NBG, NBGE, NKG, NKGE type key example.  
 Pos. 14 in TP, TPD type key example.  
 Pos. 17 in NBS type key example.  
 Pos. 17 in NB type key example.  
 Pos. 17 in NK type key example.  
 Pos. 17 in NK, NKE, NKG, NKGE type key example.  
 Pos. 17 in NB, NBE, NK, NKE type key example.

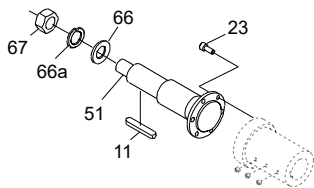
Code	Description
A	1450-2200 RPM, E-motor (ECM <sup>168</sup> )
B	2900-4000 RPM, E-motor (ECM <sup>168</sup> )
C	4000-5900 RPM, E-motor (ECM <sup>168</sup> )
1	2-pole, 50 Hz (Asynchronous motor)
2	2-pole, 60 Hz (Asynchronous motor)
3	4-pole, 50 Hz (Asynchronous motor)
4	4-pole, 60 Hz (Asynchronous motor)
5	6-pole, 50 Hz (Asynchronous motor)
6	6-pole, 60 Hz (Asynchronous motor)
7	8-pole, 50 Hz (Asynchronous motor)
8	8-pole, 60 Hz (Asynchronous motor)

<sup>16</sup> ECM: Electronically Commutated Motor.

<sup>8</sup>)

## Service kits and spares

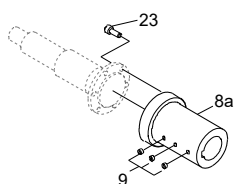
### Kit - Shaft, NBG



TM044733

#### Kit - Split shaft

- 11: Key
- 23: Needed number of screws
- 51: Shaft (split shaft)
- 66: Washer
- 66a: Lock washer
- 67: Nut

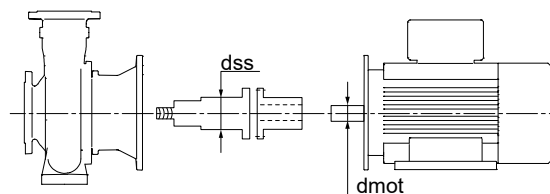


TM044734

#### Kit - Motor hub

- 8a: Motor hub
- 9: Needed number of set screws
- 23: Needed number of screws

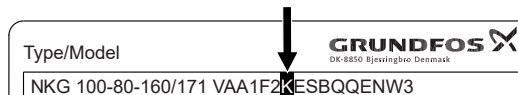
**Step 1: Find the pump size, measure and note the diameter 'dss' of the split shaft.**



TM084149

Pump size		Nom. Impeller Diameter [mm]	Shaft seal diameter dss [mm]
Inlet [mm]	Outlet [mm]		
80	65	160	28
80	50	200	28
100	65	200	38
100	80	125	28
100	80	160	38
125	100	160	38
125	100	200	38
125	100	250	48

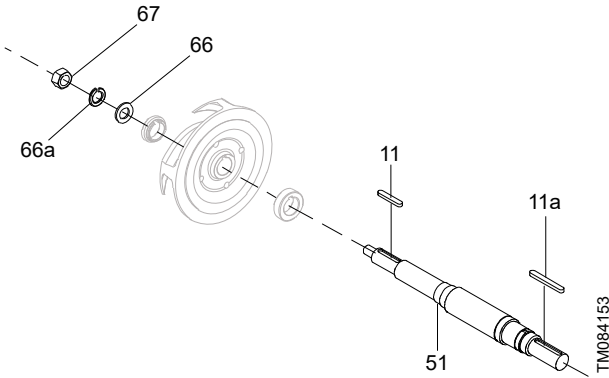
**Step 2: Use the dss diameter, the motor shaft diameter, and the material code to find the needed kit.**



Material code

Pump Shaft dia. dss [mm]	Motor Shaft dia. dmot [mm]	Split shaft		Motor hub
		Material code		
		C, K, M, S (EN 1.4401 / AISI 316)	I, L, T, U (EN 1.4462 / ASTM J92205)	
28	14	92811320	92811321	96810016
28	19	92811320	92811321	96810017
28	24	92811320	92811321	96810018
28	28	92811320	92811321	96810019
28	38	92811320	92811321	96810020
28	42	92811320	92811321	96810021
28	48	92811320	92811321	96306481
28	55	92811320	92811321	96306482
48	24	96306478	96847124	92811322
48	28	96306478	96847124	92811323

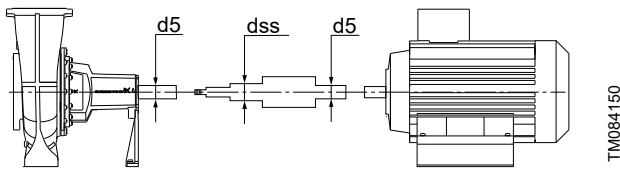
**Kit - Shaft, NKG**



**Kit - Shaft**

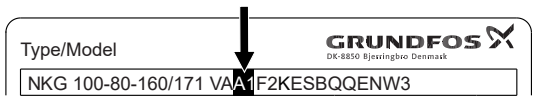
- 11 and 11a: Key, part of complete shaft
- 51: Shaft
- 66: Washer
- 66a: Lock washer
- 67: Nut for impeller

**Step 1: Find the pump size, measure and note the diameter d5 of the pump end.**

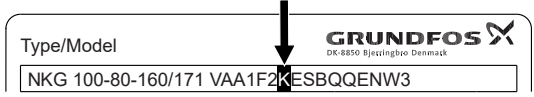


Pump size		Nom. Impeller Diameter [mm]	Shaft seal diameter dss [mm]	Shaft diameter d5 [mm]
Inlet [mm]	Outlet [mm]			
80	65	160	28	24
80	50	200	28	24
100	65	200	38	32
100	80	125	28	24
100	80	160	38	32
125	100	160	38	32
125	100	200	38	32
125	100	250	48	42

**Step 2: Use the pump version code, the d5 diameter, and the material code to find the needed kit.**



*Pump version code*



*Material code*

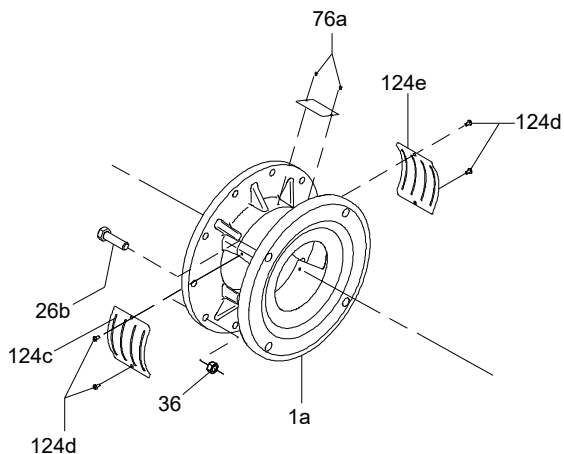
**Kit - Shaft for pump versions - A1, A2, I1, I2 and Y1**

d5 [mm]	Material code		
	A	C, K, M, S	I, L, T
	Shaft material		
	1.4301 + 1.0503	1.4401	1.4462
24	<a href="#">92811385</a>	= 1.4462 kit	<a href="#">92811384</a>
32	= 1.4401 kit	<a href="#">99437338</a>	<a href="#">99437339</a>
42	= 1.4401 kit	<a href="#">96861524</a>	<a href="#">96861525</a>

**Kit - Shaft for pump versions - G1, G2, H1, H2, J1, J2, K1, K2, W1, Z1**

d5 [mm]	Material code		
	A	C, K, M, S	I, L, T
	Shaft material		
	1.4301 + 1.0503	1.4401	1.4462
24	= 1.4462 kit	= 1.4462 kit	<a href="#">92811386</a>
32	<a href="#">98819680</a>	<a href="#">97926898</a>	<a href="#">97929231</a>
42	<a href="#">98819877</a>	<a href="#">96887358</a>	<a href="#">96887359</a>

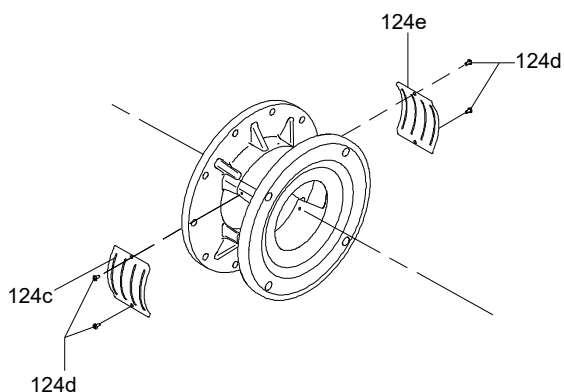
**Kit - Motor stool and shaft guards**



TM084154

**Kit - Motor stool**

- 1a: Motor stool
- 26b: Needed number of screws
- 36: Needed number of nuts
- 76a: Rivet of nameplate
- 124c and 124e: Coupling guards
- 124d: 4 x Screw for coupling guard

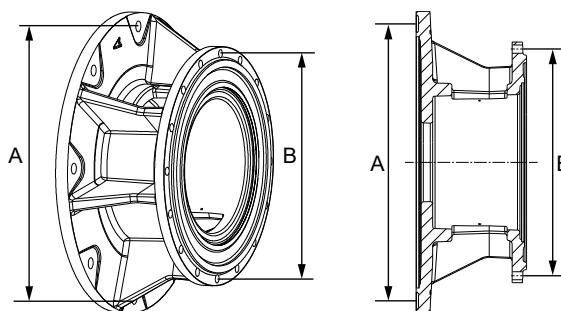


TM084155

**Kit - Shaft guards**

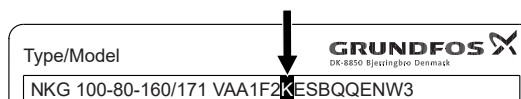
- 124c and 124e: Coupling guards
- 124d: 4 x Screw for coupling guard

**Step 1: Measure the pitch circle diameter (PCD) for the pump and motor interfaces.**



A: PCD, pump side  
B: PCD, motor side

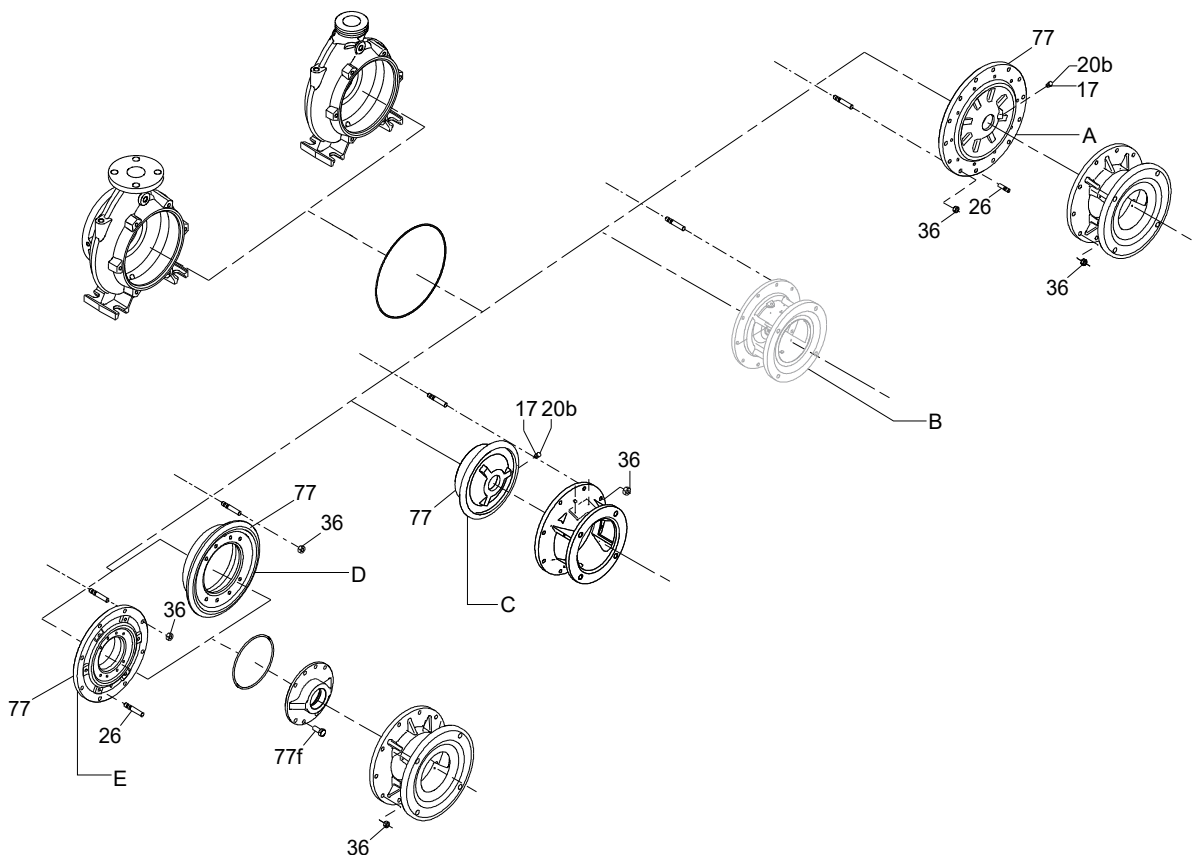
**Step 2: Use pump and motor pitch circle diameters to find needed kits.**



Material code

PCD [mm]		Kit	
Pump side	Motor side	Motor stool	Shaft guards
208	130	96935180	96956198
208	165	96935181	96591145
208	215	96935182	96956201
208	265	96935183	96956201
208	300	96935184	96956222
208	350	96935185	96956222
266	165	96935186	96809944
266	215	96942545	96591145
266	265	95131784	96591145
266	300	95131785	96809945
266	350	95131786	96809945
266	400	95131787	96809946
266	500	96935187	96956222
266	600	96935188	96809946
266	740	96935211	96956222
328	265	96935189	96956201
328	300	96935191	96809945
328	350	96935193	96956222
328	400	96935195	96809946
328	500	96935197	96809946
328	600	96935199	96809946
328	740	96935209	96956222

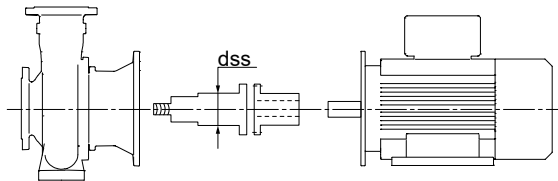
**Kit - Covers, NBG**



TM084273

- |                                      |
|--------------------------------------|
| <b>A - Kit - Bolt-in cover</b>       |
| 17: Air vent screw                   |
| 36: Needed number of nuts            |
| 77: Bolt-in Cover                    |
| <b>C - Kit - Insert cover</b>        |
| 17: Air vent screw                   |
| 36: Needed number of nuts            |
| 77: Insert cover                     |
| <b>D - Kit - Split cover, insert</b> |
| 36: Needed number of nuts            |
| 77: Split cover, insert              |
| 77f: Screw                           |
| <b>E - Split cover, bolt-in</b>      |
| 26: Needed number of staybolts       |
| 36: Needed number of nuts            |
| 77: Split cover, bolt-in             |
| 77f: Screw                           |

**Step 1: Measure and note the diameter 'dss' of the split shaft and type of the cover (A, C, D, E).**



TM084151

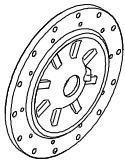
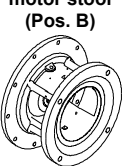

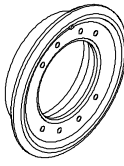
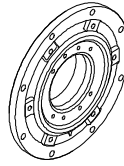
Shaft seal diameter 'dss' [mm]
28
38
48

**Step 2: Use the pump size, the shaft seal diameter 'dss', the cover type, and the material code to find the correct cover kit.**

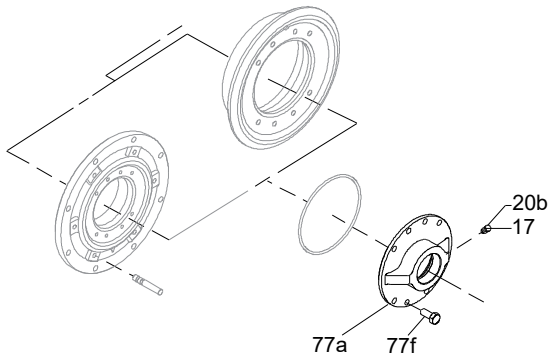


Material code

Material code			
A, B, C, D, E, F, G, H, S, T	Cast iron	EN-GJL-250	ASTM A48 class 35
I, J, K, M, N, P, U, W	Stainless steel	EN 1.4408	ASTM A351 CF8M
L, R	Stainless steel	EN 1.4517	ASTM A890 CD4MCuN

Inlet [mm]	Outlet [mm]	Pump Size		Cover, bolt-in (Pos. A) 	Integrated cover and motor stool (Pos. B) 	Cover, insert (Pos. C) 	Split cover, insert (Pos. D) 	Split cover, bolt-in (Pos. E) 
		Nom. Impeller Diameter [mm]	Shaft seal diameter dss [mm]					
		Material	Material					
				EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517
80	65	160	28	- - -	- - -	92811301 - -	- 92811308 92811311	- - -
80	50	200	28	92811302 - -	- - -	- - -	- - -	- 92811309 92811312
100	65	200	38	92811304 - -	- - -	- - -	- - -	- 92811309 92811312
100	80	125	28	- - -	- - -	92811301 - -	- 92811308 92811311	- - -
100	80	160	38	- - -	- - -	92811303 - -	- 92811308 92811311	- - -
125	100	160	38	- - -	- - -	92811303 - -	- 92811308 92811311	- - -
125	100	200	38	- - -	- - -	98990962 96927288 96927273	- - -	- - -
125	100	250	48	- - -	- - -	92811305 - -	- 92811310 92811313	- - -

**Kit - Seal cover, NBG**

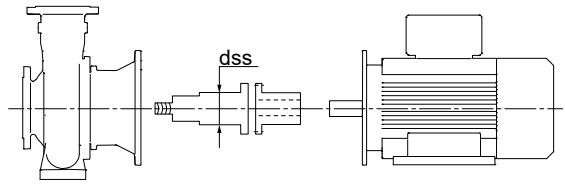


TM084274

**Kit - Seal cover**

- 20b: Plug
- 77a: Seal cover, standard mechanical seal
- 77f: Needed number of screws

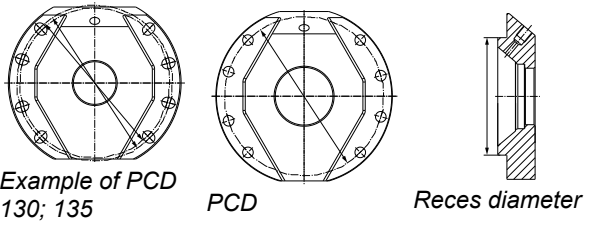
**Step 1: Find the pump size, measure and note the diameter 'dss' of the split shaft.**



Pump size		Nom. Impeller Diameter [mm]	Shaft seal diameter dss [mm]
Inlet [mm]	Outlet [mm]		
80	65	160	28
80	50	200	28
100	65	200	38
100	80	125	28
100	80	160	38
125	100	160	38
125	100	200	38
125	100	250	48

**Step 2: Use 'dss' diameter and the material code to find the needed kit.**

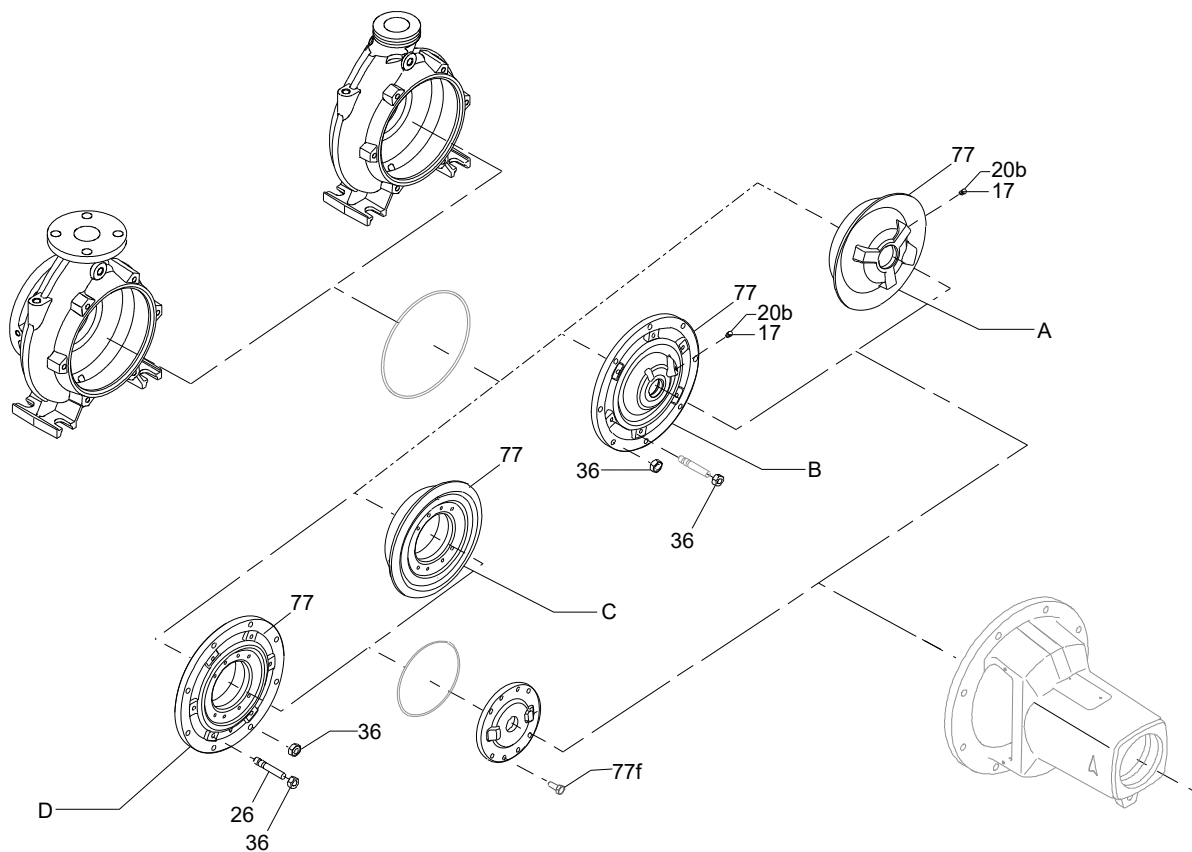
**Seal cover - single seal**



dss [mm]	Material code		Reces diameter [mm]	Pitch circle diameter PCD [mm]
	A, C, K, M, S	I, L, T		
	Seal cover material			
	1.4401	1.4517		
28	92811314	92811316	102	130;135
38	92811315	92811317	102	135
48	= 1.4517 kit	96887298	134	162



**Kit - Cover, NKG**



TM084278

**A - Kit - Insert cover**

- 17: Air vent screw
- 36: Needed number of nuts
- 77: Cover, insert

**B - Kit - Bolt-in cover**

- 17: Air vent screw
- 36: Needed number of nuts
- 77: Bolt-in Cover

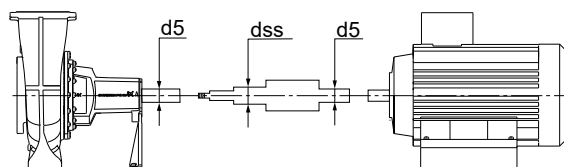
**C - Kit - Split cover, insert**

- 36: Needed number of nuts
- 77: Split cover, insert
- 77f: Screw

**D - Kit - Split cover, bolt-in**

- 26: Needed number of staybolts
- 36: Needed number of nuts
- 77: Split cover, bolt-in
- 77f: Screw

**Step 1: Measure and note the diameter 'd5' of the bearing shaft and type of the cover (A, B, C, D).**



TM084150

**Shaft diameter 'd5' [mm]**

- 24
- 32
- 42

**Step 2: Use the pump size, the shaft diameter 'd5', the cover type, and the material code to find the correct cover kit.**

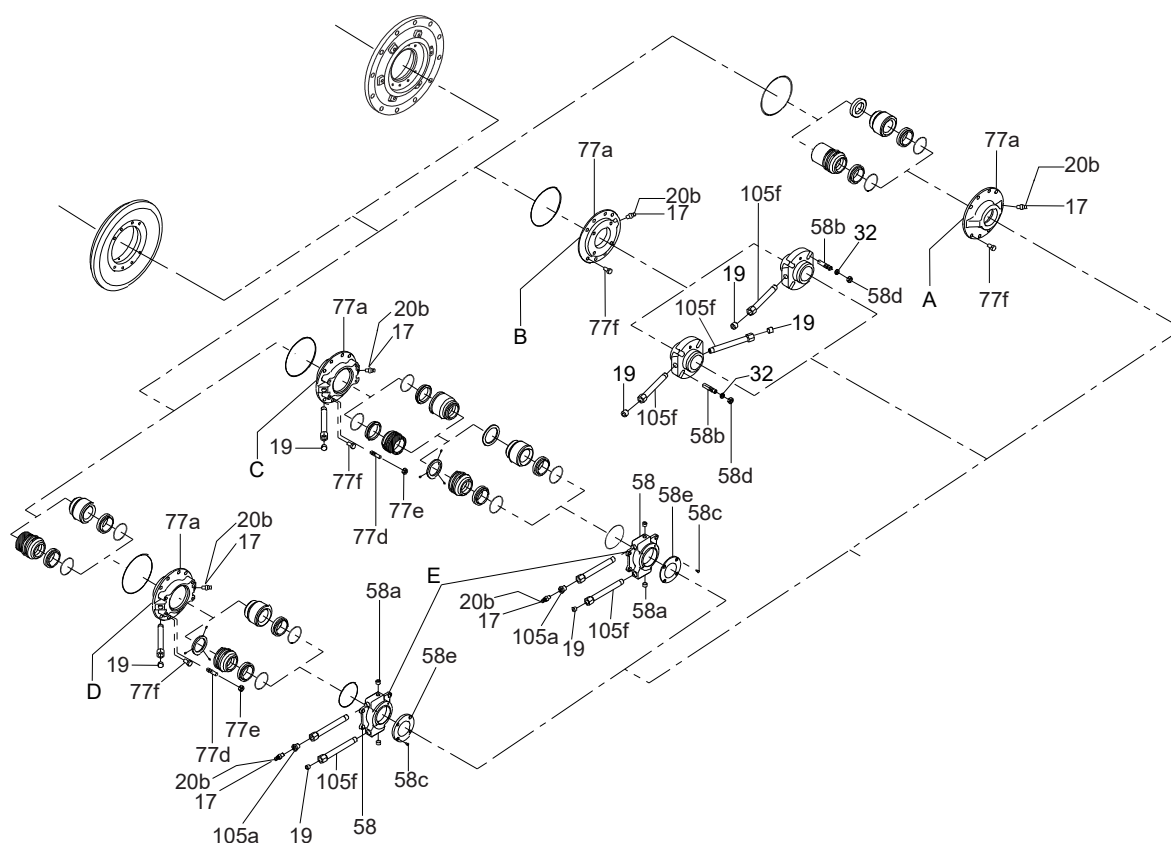
Type/Model	<b>GRUNDFOS</b> DK-8850 Sjælland Denmark
NKG 100-80-160/171 VAA1F2	RESBQQENW3

Material code

Material code			
A, B, C, D, E, F, G, H, S, T	Cast iron	EN-GJL-250	ASTM A48 class 35
I, J, K, M, N, P, U, W	Stainless steel	EN 1.4408	ASTM A351 CF8M
L, R	Stainless steel	EN 1.4517	ASTM A890 CD4MCuN

Pump Size		Nom. Impeller Diameter [mm]	Shaft seal diameter dss [mm]	Cover, insert (Pos. A)	Cover, bolt-in (Pos. B)	Split cover, insert (Pos. C)	Split cover, bolt-in (Pos. D)
Inlet [mm]	Outlet [mm]			Material	Material	Material	Material
				EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517	EN-GJL-250 1.4408 1.4517
80	65	160	24	92811301 - -	- - -	- - 92872581	- - -
80	50	200	24	- - -	92811302 - -	- - -	- - 92872582
100	65	200	32	- - -	92811304 - -	- - -	- 92811309 92811312
100	80	125	24	92811301 - -	- - -	- - 92872581	- - -
100	80	160	32	92811303 - -	- - -	- 92811308 92811311	- - -
125	100	160	32	92811303 - -	- - -	- 92811308 92811311	- - -
125	100	200	32	98990962 - -	- - -	- 97904772 97904787	- - -
125	100	250	42	92811305 - -	- - -	- 92811310 92811313	- - -

**Kit - Seal cover and seal housing, NKG**



TM084283

**A - Seal cover, single (NBG + NKG)**

- 20b: Plug
- 77a: Seal cover, standard mechanical seal
- 77f: Needed number of screws

**B - Seal cover, cartridge seal (NKG only)**

- 20b: Plug
- 58b: Needed number of studs
- 58d: Needed number of nuts
- 77a: Seal cover, cartridge seal
- 77f: Needed number of screws
- 105f: Extension pipe (2 pcs if CARTEX DN, 1 pcs if CARTEX SN)

**C - Seal cover, back to back seal arrangement (NKG only)**

- 19: Plug
- 20b: Plug
- 77a: Seal cover, back to back seal arrangement
- 77d: Needed number of studs
- 77e: Needed number of nuts
- 77f: Needed number of screws

**D - Seal cover, tandem seal arrangement (NKG only)**

- 19: Plug
- 20b: Plug
- 77a: Seal cover, tandem seal arrangement
- 77d: Needed number of studs
- 77e: Needed number of nuts
- 77f: Needed number of screws

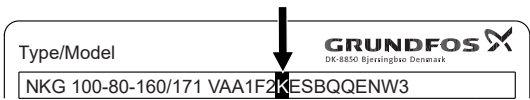
**E - Seal housing (NKG only)**

- 19: Plug
- 20b: Plug
- 58: Seal housing
- 58a: Plug
- 58c: Screw, torx
- 58e: Protective cover
- 105a: Needed number of screws
- 105f: Extension pipe

**Step 1: Find the pump size, measure and note the diameter 'dss' of the shaft.**

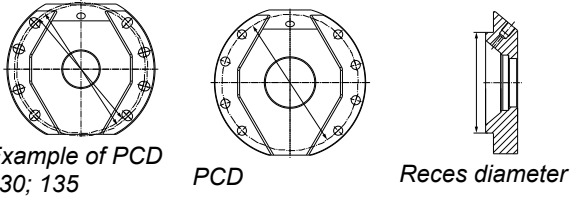
Pump Size		Nom. Impeller Diameter [mm]	Shaft diameter d5 [mm]
Inlet [mm]	Outlet [mm]		
80	65	160	24
80	50	200	24
100	65	200	32
100	80	125	24
100	80	160	32
125	100	160	32
125	100	200	32
125	100	250	42

Step 2: Use 'd5' diameter, the seal cover type and the material code to find the needed kit.



Material code

Seal cover - Single seal



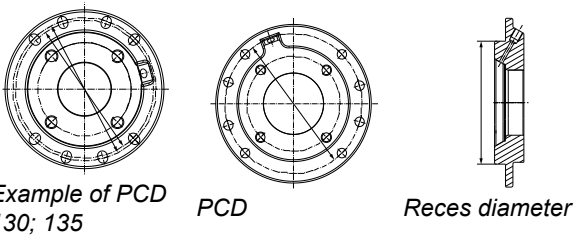
Example of PCD  
130; 135

PCD

Reces diameter

d5 [mm]	Material code		Reces diameter [mm]	Pitch circle diameter PCD [mm]
	A, C, K, M, S	I, L, T		
	Seal cover material			
	1.4401	1.4517		
24	92811314	92811316	102	130;135
32	92811315	92811317	102	135
42	= 1.4517 kit	96887298	134	162

Seal cover - Cartridge seal



Example of PCD  
130; 135

PCD

Reces diameter

	d5 [mm]	Material code		Reces diameter [mm]	Pitch circle diameter PCD [mm]
		A, C, I, K, L, M, S, T			
		Seal cover material			
		1.4401	1.4517		
CARTEX-SN Single seal	24	= 1.4517 kit	97904812	102	130;135
	32	= 1.4517 kit	97929245	102	135
	42	= 1.4517 kit	92521666	134	162
CARTEX-DN Double seal	24	= 1.4517 kit	97904811	102	130
	32	= 1.4517 kit	97929244	102	135
	42	= 1.4517 kit	96887280	134	162

Seal cover - Back to back seal arrangement



PCD

Reces diameter

d5 [mm]	Material code		Reces diameter [mm]	Pitch circle diameter PCD [mm]
	A, C, I, K, L, M, S, T			
	Seal cover material			
	1.4401	1.4517		
24	= 1.4517 kit	97904808	102	130
32	= 1.4517 kit	97929243	102	135
42	= 1.4517 kit	96887269	134	162

Seal cover - Tandem seal arrangement



Example of PCD  
130; 135

Reces diameter

d5 [mm]	Material code		Reces diameter [mm]	Pitch circle diameter PCD [mm]
	A, C, I, K, L, M, S, T			
	Seal cover material			
	1.4401	1.4517		
24	= 1.4517 kit	97904807	102	130; 135
32	= 1.4517 kit	97929242	102	135
42	= 1.4517 kit	96887267	134	162

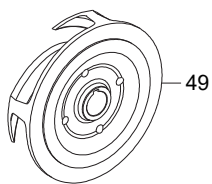
Seal housing



Reces diameter

d5 [mm]	Material code	
	A, C, I, K, L, M, S, T	
	Housing material	
	1.4401	1.4517
24	= 1.4517 kit	97904813
32	= 1.4517 kit	97929246
42	= 1.4517 kit	96887300
48	= 1.4517 kit	97536510
60	= 1.4517 kit	97536511

Spare - Impeller



TM084293

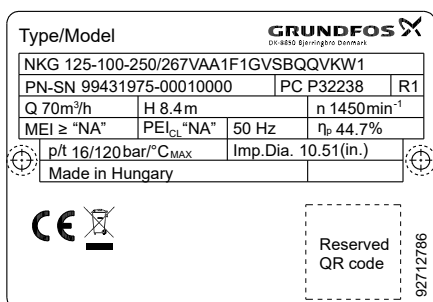
Spare - Impeller	
49: Impeller	



d24 + d32



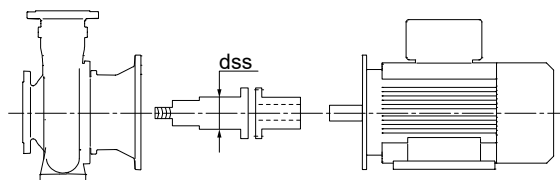
d42



TM084689

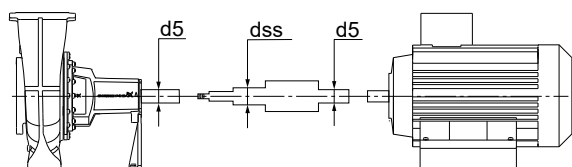
Step 1:

For NBG - measure shaft seal diameter (dss) on the shaft and check the trim on the nameplate.



TM084151

For NKG - measure shaft diameter (d5) on shaft and check the trim on the nameplate.



TM084150

Pump size		Nom. Impeller Diameter [mm]	Shaft seal diameter dss [mm]	Shaft diameter d5 [mm]	Actual trims
Inlet [mm]	Outlet [mm]				
80	65	160	28	24	158; 171
80	50	200	28	24	183; 199; 215
100	65	200	38	32	183; 199
100	80	125	28	24	144
100	80	160	38	32	158; 171
125	100	160	38	32	158; 171
125	100	200	38	32	171; 183; 199; 215
125	100	250	48	42	230; 255; 267; 275

Step 2: Use the dss/d5 diameter, the trim, and the material code to find the needed kit.

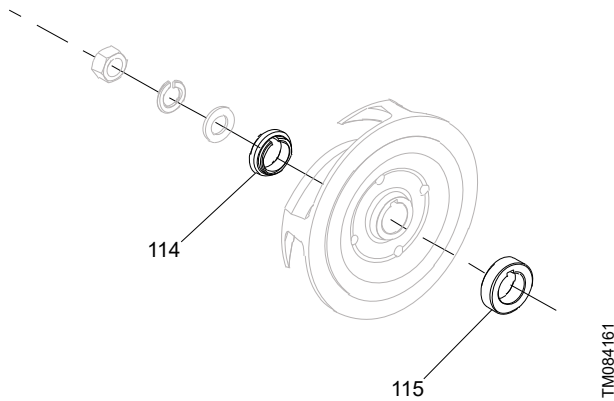


Material code

Material code			
A, B, C, D, E, F, G, H, S, T	Cast iron	EN-GJL-250	ASTM A48 class 35
I, J, K, M, N, P, U, W	Stainless steel	EN 1.4408	ASTM A351 CF8M
L, R	Stainless steel	EN 1.4517	ASTM A890 CD4MCuN

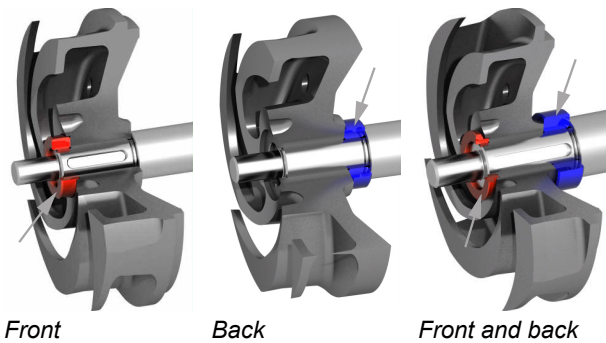
d5 [mm]	dss [mm]	Trim diameter	Pump Material code		
			A, C, S, T	I, K, M	L
			Impeller material		
			Spare		
			Cast iron	1.4408	1.4517
24	28	Ø215	92811253	92811259	92811265
24	28	Ø199	92811254	92811260	92811266
24	28	Ø183	92811255	92811261	92811267
24	28	Ø171	92811256	92811262	92811268
24	28	Ø158	92811257	92811263	92811269
24	28	Ø144	92811258	92811264	92811270
32	38	Ø215	92811271	92811277	92811283
32	38	Ø199	92811272	92811278	92811284
32	38	Ø183	92811273	92811279	92811285
32	38	Ø171	92811274	92811280	92811286
32	38	Ø158	92811275	92811281	92811287
32	38	Ø144	92811276	92811282	92811288
42	48	Ø275	92811289	92811293	92811297
42	48	Ø267	92811290	92811294	92811298
42	48	Ø255	92811291	92811295	92811299
42	48	Ø230	92811292	92811296	92811300

**Spare - Spacer for impeller**



**Spare - spacer for impeller**

- 114: Spacer - front
- 115: Spacer - back



**Step 1: Find the pump size by means of d5 and actual impeller trim, and note spacer position/s and their thickness/es.**

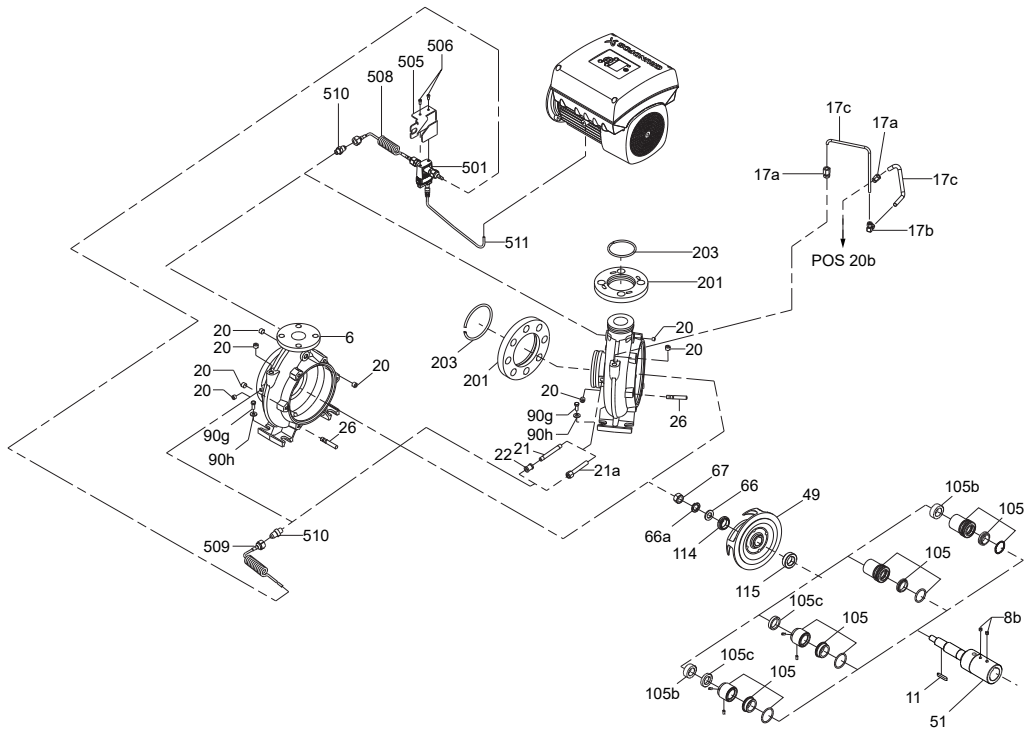
Pump size		Nom. Impeller Diameter [mm]	Pump shaft d5 [mm]	Actual impeller trim [mm]	Front	Back
					Spacer thickness	
80	65	160	24	171; 158	11	0
80	50	200	24	183; 199; 215	11	0
100	65	200	32	183	9	17.5
100	65	200	32	199	12	14.5
100	80	125	24	144	0	11
100	80	160	32	171; 158	9	17.5
125	100	160	32	171; 158	9	17.5
125	100	200	32	183; 199; 215	12	14.5
125	100	250	42	230; 255; 267; 275	0	13.5

**Step 2: Use spacer position, spacer thickness and the material code to find the spare/s.**

Spacer thickness	Material code		
	A	C, K, M, S	I, L, T
	Spacer material		
	1.4301	1.4401	1.4462
9	92811327	= 1.4462 spare	92811333
11	92811324	= 1.4462 spare	92811330
12	92811328	= 1.4462 spare	92811334
13.5	92811329	= 1.4462 spare	92811335
14.5	92811326	= 1.4462 spare	92811332
17.5	92811325	= 1.4462 spare	92811331

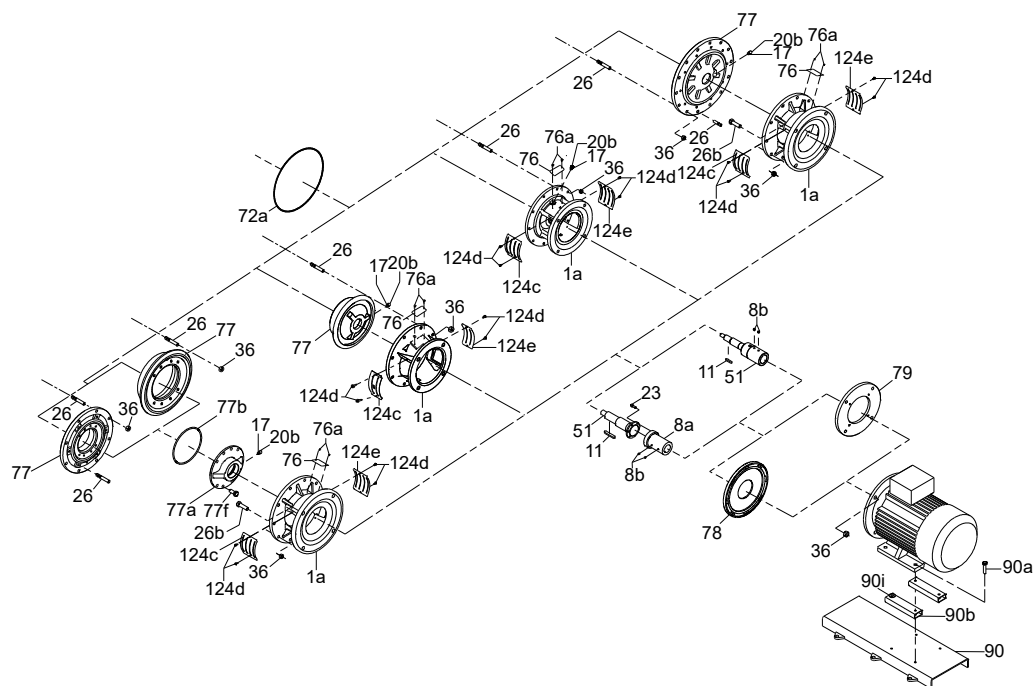
### Exploded views

#### NBG Center-line outlet, single seal, open impeller



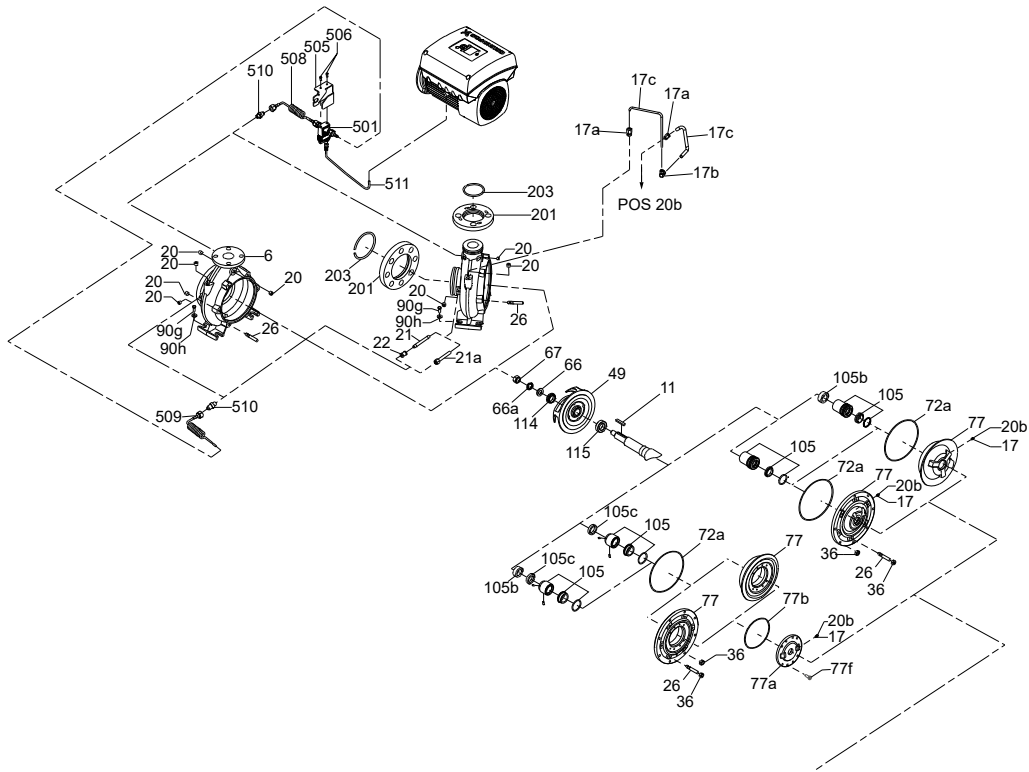
TM082440

#### NBG covers and base frame



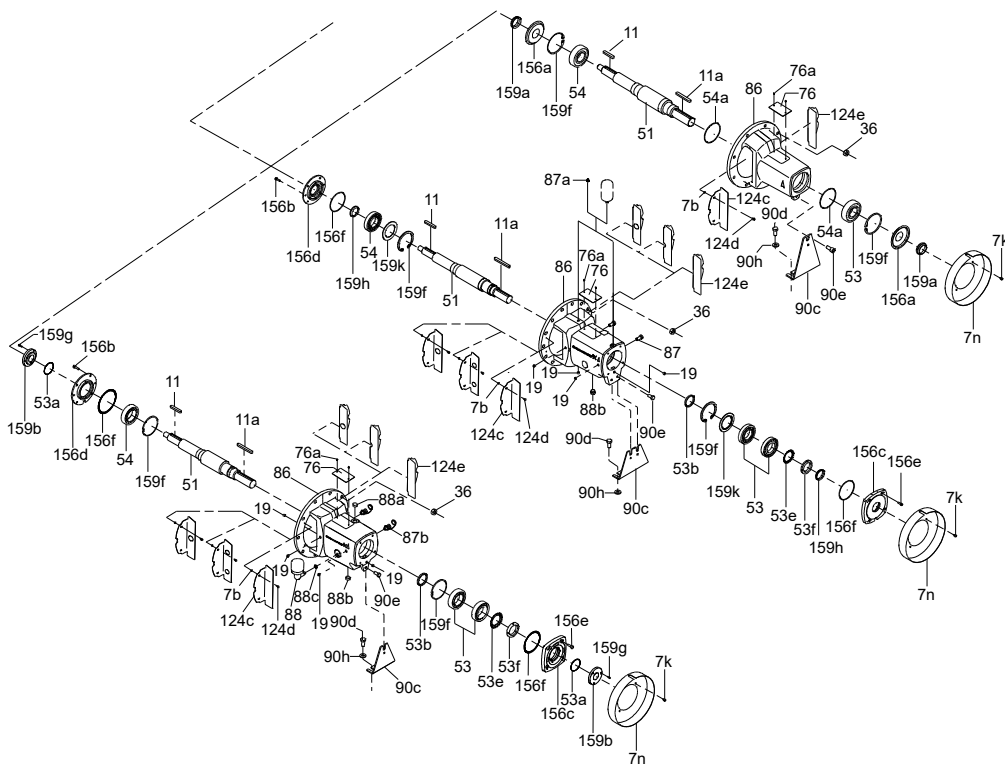
TM082441

**NKG Center-line outlet, single seal, open impeller**



TM082438

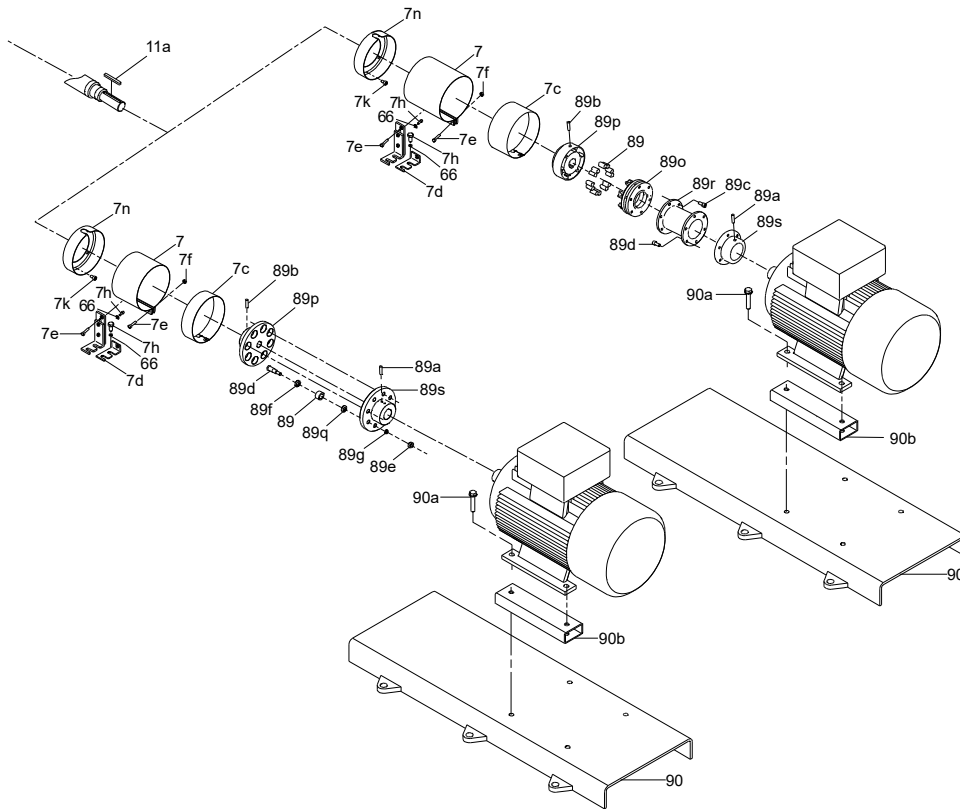
**NKG Bearing bracket**



TM083114



**NKG Coupling and base frame**



TM083115

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