

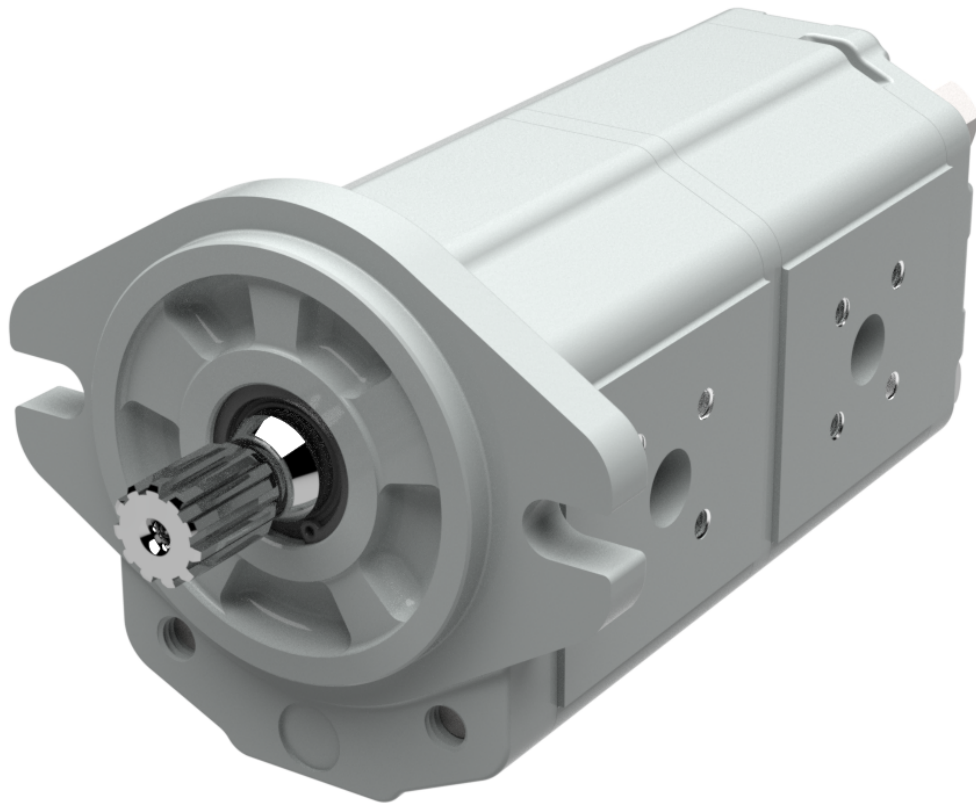
ENGINEERING
TOMORROW



Technical Information

Compact Multiple Pumps

Aluminum Group 2



Revision history

Table of revisions

Date	Changed	Rev
April 2020	First edition	0101

Contents

General information

Overview.....	4
Pump displacements.....	5

Technical Data

Specifications.....	6
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Product Code

Model code.....	7
Tandem pump model code.....	7
Triple pump model code.....	7
A Family.....	7
B Displacement.....	8
C Rotation.....	8
D Mounting flange.....	8
E Drive shaft.....	8
F Inlet size; G Outlet size.....	9
H Intermediate flange.....	9
I Rear cover.....	9
L Shaft seal.....	10
M Sealing.....	10
N Screws.....	10
O Valve settings.....	10
P Marking type.....	10
Q Marking position.....	10
R Special features.....	11

Mounting flange options

Flanges.....	12
--------------	----

Shaft options

Shafts.....	14
-------------	----

Dimensions

Dimensions.....	17
-----------------	----

General information**Overview**

A relevant market trend in modern mobile systems is increased machine complexity and greater emphasis in hydraulic capacity. Compact size and high performance through varied operational conditions is mandatory in gear pumps. Commonly an efficient pump configuration involves using multiple pump sections in a single unit, where each section is isolated to a specific function. A common gear pump application utilizes the first stage for steering, second stage for work function and optional third stage is used for auxiliary accessories.

In order to meet this fundamental requirement, Danfoss has upgraded the multi-pump section designs and developed a compact multiple pump. This solution helps to reduce axial length by approximately up to 30 mm per additional stage compared to the standard multi-stage combination. Single and common inlet options are also available to provide value when reduction of hose/tube connections are needed.

For operational conditions and product options please refer to aluminum gear pumps group 2 catalog:

<https://assets.danfoss.com/documents/DOC322978892089/DOC322978892089.pdf>.

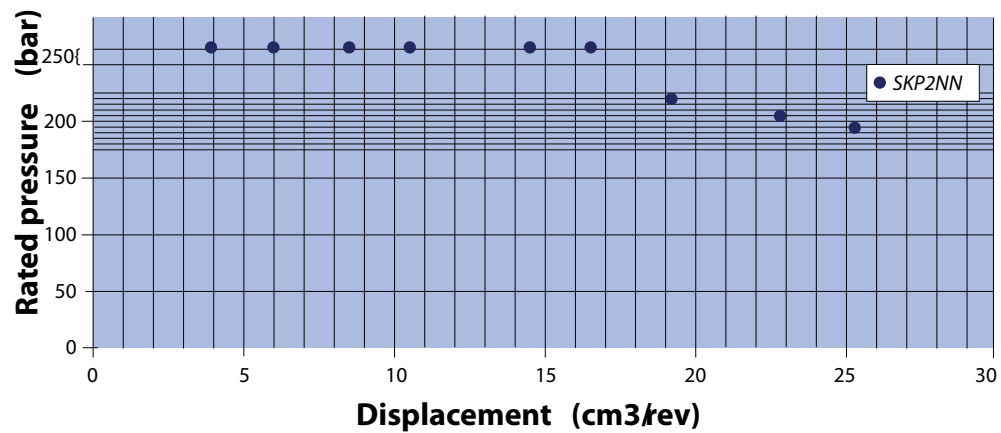
Compact Tandem Pump (top), Standard Tandem Pump (bottom)



General information

Pump displacements

Quick reference chart for pump displacements vs. rated pressure



Technical Data

Specifications

Frame size		4,0	6,0	8,0	011	014	017	019	022	025
Displacement	cm ³ /rev [in ³ /rev]	3.9 [0.24]	6.0 [0.37]	8.4 [0.51]	10.8 [0.66]	14.4 [0.88]	16.8 [1.02]	19.2 [1.17]	22.8 [1.39]	25.2 [1.54]
SKP2										
Peak pressure	bar [psi]	280 [4060]	280 [4060]	280 [4060]	280 [4060]	280 [4060]	280 [4060]	260 [3770]	230 [3335]	200 [2900]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	240 [3480]	210 [3045]	190 [2755]
Minimum speed at 0-100 bar	min ⁻¹ (rpm)	600	600	600	500	500	500	500	500	500
Minimum speed at 100-180 bar		1200	1200	1000	800	750	750	700	700	700
Min. speed at 180 bar to rated pressure		1400	1400	1400	1200	1000	1000	1000	800	800
Maximum speed		4000	4000	4000	4000	3500	3000	3000	3000	3000
Both										
Weight	kg [lb]	2.3 [5.1]	2.4 [5.3]	2.5 [5.5]	2.7 [5.8]	2.9 [6.3]	3.0 [6.5]	3.1 [6.7]	3.2 [7.0]	3.3 [7.3]
Moment of inertia of rotating components	x 10 ⁻⁶ kg·m ² [x 10 ⁻⁶ lb·ft ²]	21.3 [505]	26.5 [629]	32.4 [769]	38.4 [911]	47.3 [1122]	53.3 [1265]	59.2 [1405]	68.1 [1616]	74.1 [1758]
Theoretical flow at maximum speed	l/min [US gal/min]	15.6 [4.1]	24.0 [6.3]	33.6 [8.9]	43.2 [11.4]	50.4 [13.3]	50.4 [13.3]	57.6 [15.2]	68.4 [18.0]	75.6 [20.0]

1 kg·m² = 23.68 lb·ft²

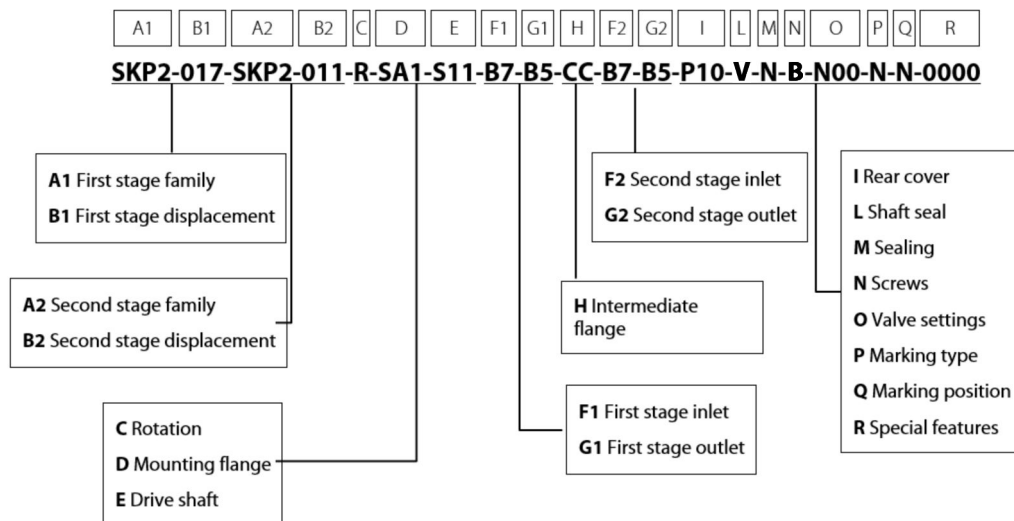
! Caution

The rated and peak pressure mentioned are for pumps with flanged ports only. When threaded ports are required a de-rated performance must be considered. To verify the compliance of a high pressure application with a threaded ports pump apply to a Danfoss representative.

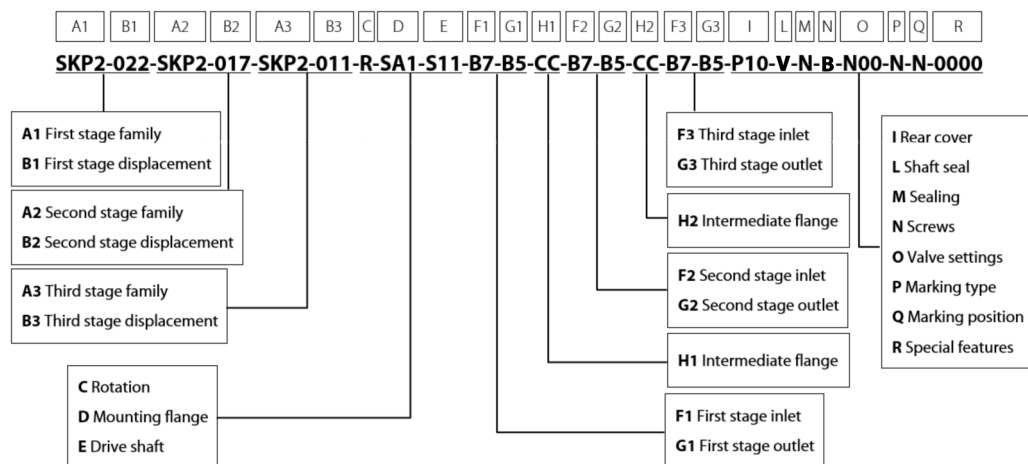
Product Code

Model code

Tandem pump model code



Triple pump model code



A Family

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
•	•	•	•												
SKP2		HighTorque Group 2 Pump													

Product Code
B Displacement

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
	•	•	•												

4,0	3.9 cm ³ /rev [0.240 in ³ /rev]
6,0	6.0 cm ³ /rev [0.360 in ³ /rev]
8,0	8.4 cm ³ /rev [0.513 in ³ /rev]
011	10.8 cm ³ /rev [0.659 in ³ /rev]
014	14.4 cm ³ /rev [0.879 in ³ /rev]
017	16.8 cm ³ /rev [1.025 in ³ /rev]
019	19.2 cm ³ /rev [1.171 in ³ /rev]
022	22.8 cm ³ /rev [1.391 in ³ /rev]
025	25.2 cm ³ /rev [1.538 in ³ /rev]

Other frame sizes and displacements are available upon request.

C Rotation

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
		•													

R	Right (Clockwise)
L	Left (Counterclockwise)

D Mounting flange

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
			•	•	•										

E10	European 4 bolts pilot Ø36,5
B10	German 4 bolts pilot Ø80
B20	German 2-bolt (\ mounting holes pattern) pilot Ø50
B22	German 2-bolt (/ mounting holes pattern) pilot Ø50
SA1	SAE-A 2 bolts pilot Ø82,55
SA2	SAE-A 2 bolts pilot Ø82,55 + Oring on pilot
SB1	SAE-B 2 bolts pilot Ø101,6

E Drive shaft

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
				•	•	•									

T80	Taper 1:8-M12x1,25-Key 4
T50	Taper 1:5-M12x1,25-Key 3
S09	Spline SAE J498 - 9T
S11	Spline SAE J498 - 11T
S13	Spline SAE J498 - 13T (only with flange SB1)

Product Code

PS1	Parallel SAE Ø15,875 (Ø5/8")
PS3	Parallel SAE Ø19,05 (Ø3/4")
SD1	Spline DIN 5482 B17x14 - L10
SD2	Spline DIN 5482 B17x14 - L14

F Inlet size; G Outlet size

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
					•	•	•	•							

B5	15x35xM6	
B6	15x40xM6	
B7	20x40xM6	
C3	13,5x30xM6	
C5	13,5x40xM8	
C7	20x40xM8	
E4	3/4-16UNF	
E5	7/8-14UNF	
E6	1-1/16-12UN	
F3	3/8 GAS	
F4	1/2 GAS	
F5	3/4 GAS	
NN	Without port on body	

For standard port combinations refer to aluminum gear pumps group 2 catalog. Other port options are available upon request.

H Intermediate flange

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
							•	•							

CC	Compact intermediate flange
-----------	-----------------------------

I Rear cover

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
								•	•	•					

P10	Standard pump cover
I10	Pump cover for relief valve
E14	Pump cover for relief valve+external drain 3/4-16UNF-2B

Product Code

L Shaft seal

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
											•				

V	VITON
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M Sealing

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
											•				

N	NBR
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N Screws

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
											•				

B	Anti-corrosion screws
----------	-----------------------

O Valve settings

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
												•	•	•	

N00	No valve
V**	Integral relief valve

[For valve settings refer to aluminum gear pumps group 2 catalog.](#)

P Marking type

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
														•	

N	Standard Danfoss Marking
A	Standard Danfoss Marking+Customer Code
Z	Without Marking

Q Marking position

A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
														•	

N	Standard marking position (top side)
A	Special marking position (bottom side)

Product Code

R Special features

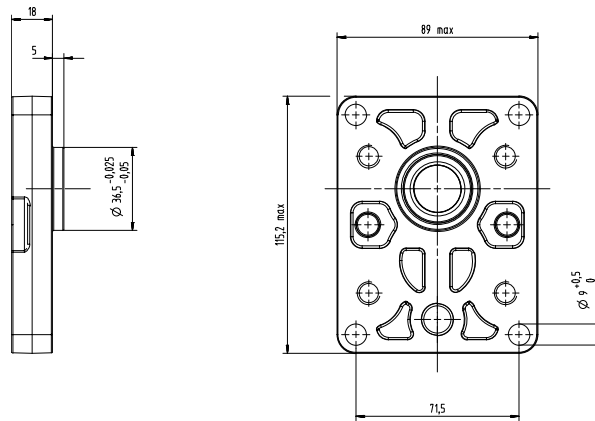
A			B			C	D			E			F	G	H	I			L	M	N	O			P	Q	R
																											•

0000	No special features
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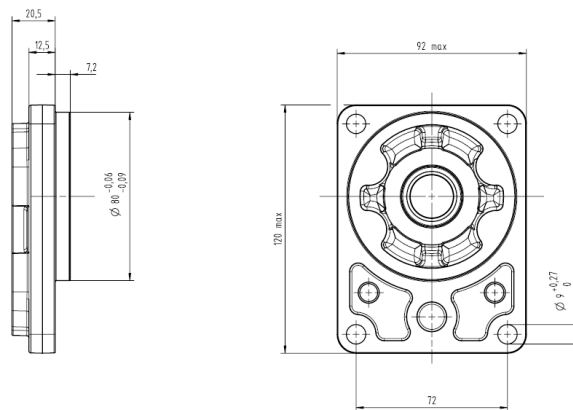
Mounting flange options

Flanges

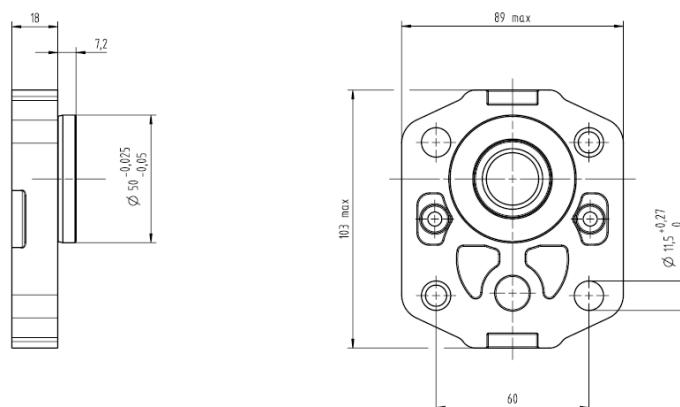
E10



B10

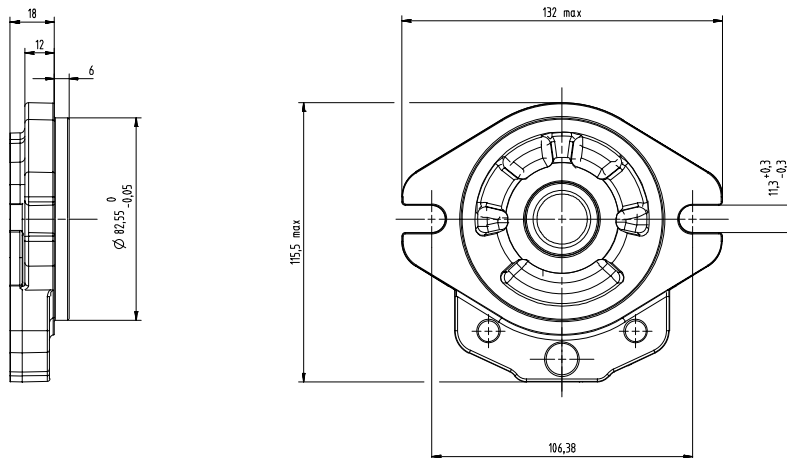


B20 (-B22)

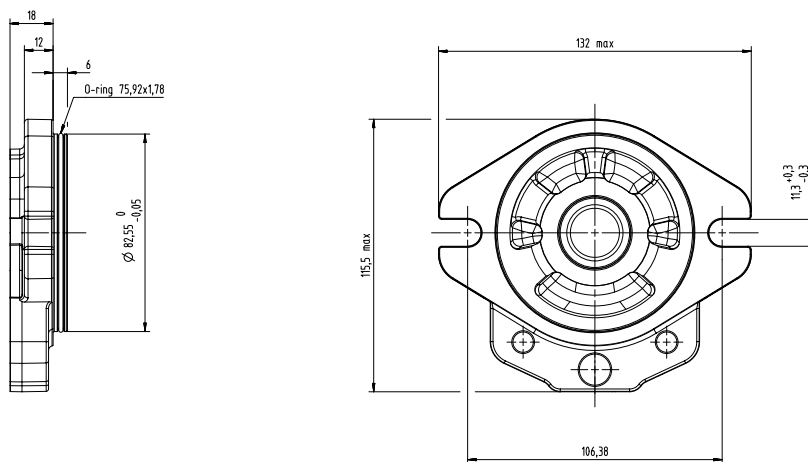


Mounting flange options

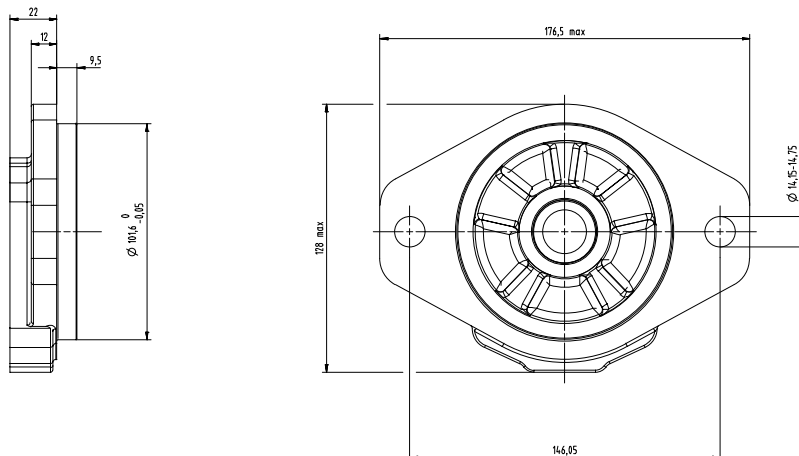
SA1



SA2



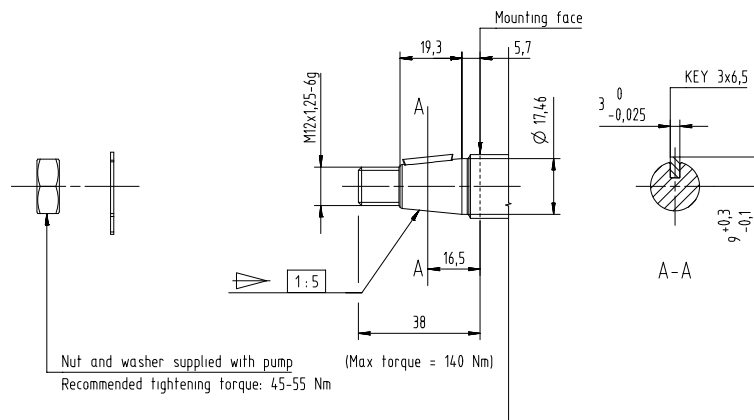
SB1



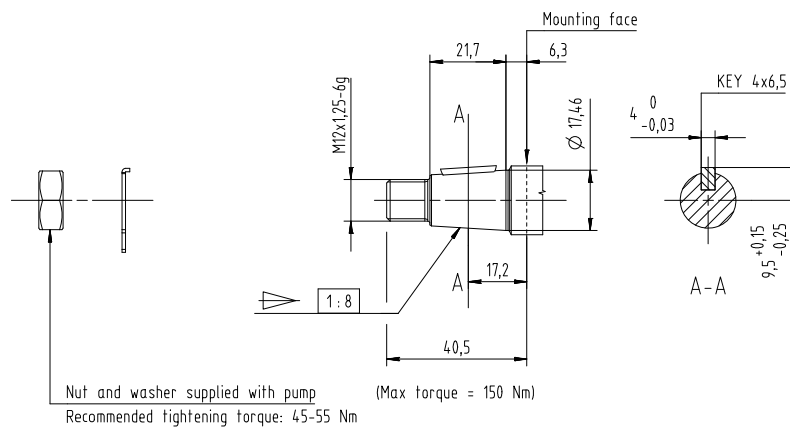
Shaft options

Shafts

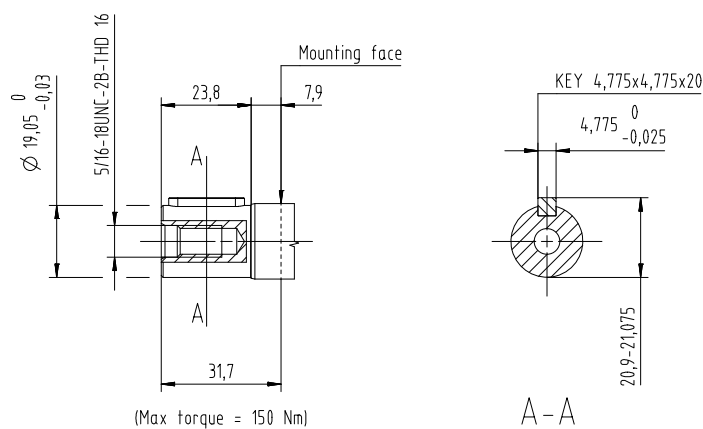
T50



T80

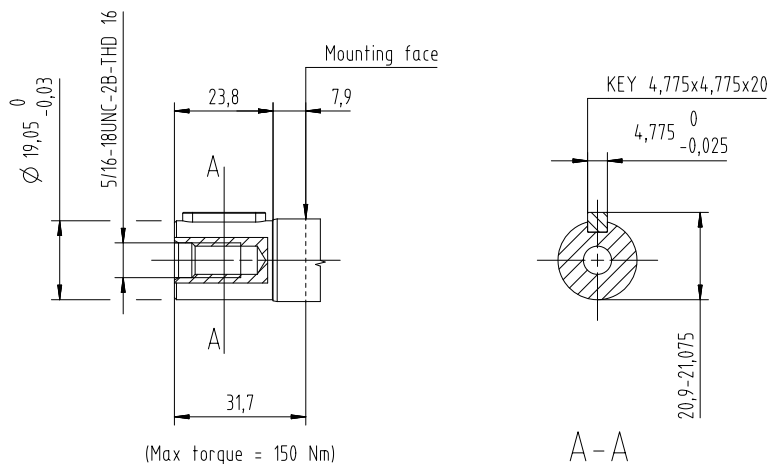


PS1

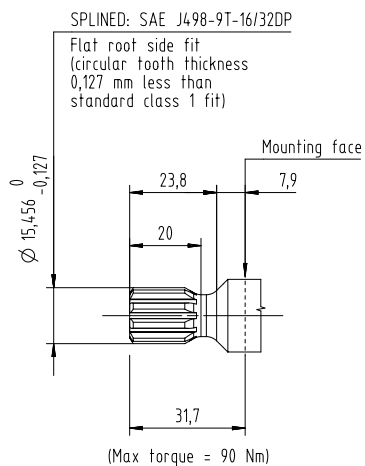


Shaft options

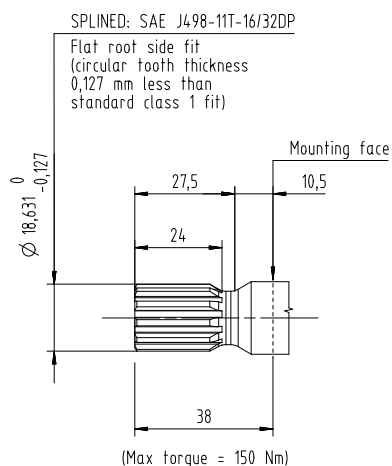
PS3



S09

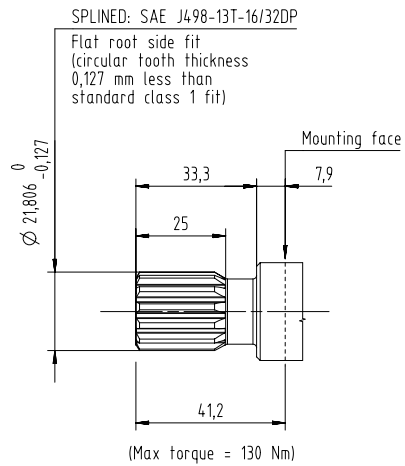


S11

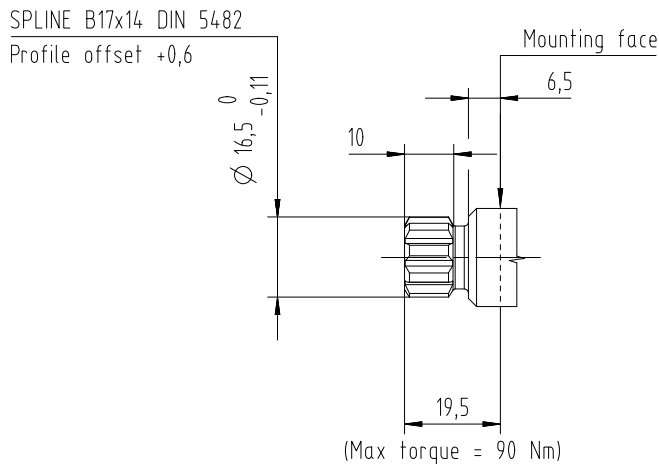


Shaft options

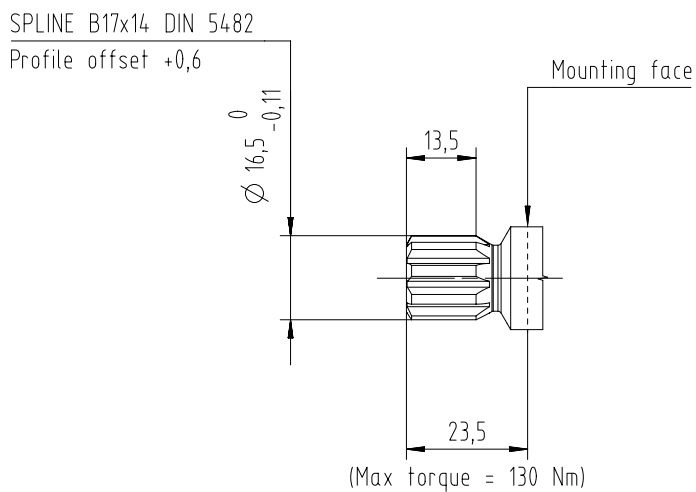
S13



SD1

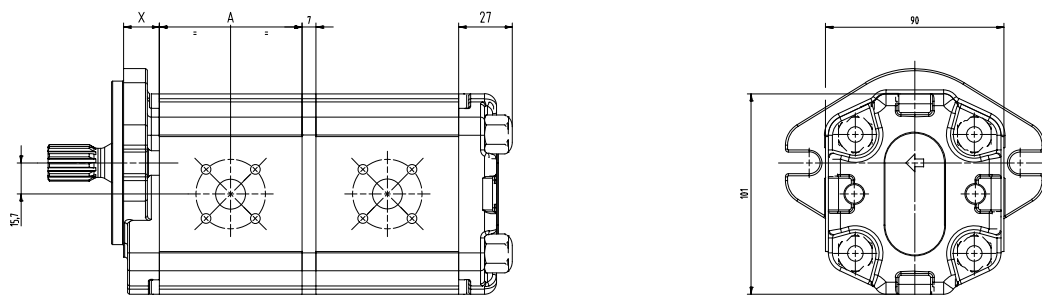


SD2



Dimensions

Dimensions



Frame size	4,0	6,0	8,0	011	014	017	019	022	025
Dimension A	50,5	54	58	62	68	72	76	82	86

Mounting flange	E10	B10	B20 (B22)	SA1 (SA2)	SB1
Dimension X	18	20.5	18	18	22

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