BURNER COMPONENTS DIVISION



Danfoss Oil Pumps for Heating and Industrial Applications Conversion Tables

Danfoss Oil Pumps for Heating Applications

BFP Type System and Conversion Table
Suntec to Danfoss



BFP type system

BFP **X** **X** **X** **X** **X**

X (5th)
- L LEFT NOZZLE OUTLET
- R RIGHT NOZZLE OUTLET

X (4th)
- 3 CAPACITY 24 L/H
- 5 CAPACITY 42 L/H
- 6 CAPACITY 60 L/H
- 8 CAPACITY 80 L/H
- 11 CAPACITY 110 L/H
- 13 CAPACITY 130 L/H

X (3rd)
- L LEFT ROTATION
- R RIGHT ROTATION

X (2nd)
- 0 WITHOUT SOLENOID VALVE
- 1 WITH ONE SOLENOID VALVE
- 2 WITH TWO SOLENOID VALVES
- 3 WITH TWO SOLENOID VALVES, HIGH/LOW P-PORT

X (1st)
- 1 RINGFILTER, SIDE REGULATION
- 2 CARTRIDGE FILTER, FRONT REGULATION
- 3 CARTRIDGE FILTER, SIDE REGULATION
- 4 SOLENOID VALVE (SPECIAL), FRONT REGULATION
- 5 TWO-REGULATIONS, TWO STAGES

Conversion Table

One stage pumps

All data at 2850 min^{-1}, 10 bar, 5 cSt.

Suntec pump types	Capacity l/h	Danfoss pump types	Capacity l/h	Remarks and differences for Danfoss types
AN47	40	BFP 20 3* or 5*	24/42	membrane reg., no closing function
AN57	57	BFP 10 6*	60	membrane reg,. no closing function
AN67	80	BFP 10 8	80	piston reg. with or without closing function
AN77	110	BFP 10 11	111	piston reg. with or without closing function
AN97	127	BFP 10 13	130	piston reg. with or without closing function
AE47	42	BFP 20 3* or 5*	24/42	membrane reg., no closing function
AE57	60	BFP 10 6*	60	membrane reg., no closing function
AE67	85	BFP 10 8	80	piston reg. with or without closing function
AE77	112	BFP 10 11	111	piston reg. with or without closing function
AE97	132	BFP 10 13	130	piston reg. with or without closing function
AS47 NO	40	BFP 21 3* or 5*	24/42	membrane reg., no closing function, NC
AS57 NO	58	BFP 11 6*	60	membrane reg., no closing function, NC
AS67 NO	82	BFP 11 8	80	piston reg. with or without closing function, NC
AL35 NC	40	BFP 21 3* or 5*	24/42	membrane reg., no closing function, NC
AL55 NC	60	BFP 11 6*	60	membrane reg., no closing function, NC
AL65 NC	82	BFP 11 8	80	piston reg. with or without closing function, NC
AL75 NC	110	BFP 11 11	111	piston reg. with or without closing function, NC
AL95 NC	130	BFP 11 13	130	piston reg. with or without closing function, NC
ALE 35 NC	41	BFP 21 3 LE*	16	membrane reg., no closing function, NC
ALE 35 NC	41	BFP 21 3 LES*	24	membrane reg., no closing function, NC

** BFP housing*

All BFP-types with capacity 8, 11, 13 are in Suntec like housing

Conversion Table

Two stage pumps

All data at 2850 min^{-1}, 10 bar, 5 cSt.

Suntec pump types	Capacity l/h	Danfoss pump types	Capacity l/h	Remarks and differences for Danfoss types
AP 47	40			Will not be substituted
AP 57	58			Will not be substituted
AP 67	80			Will not be substituted
AP2 45 NO	48	BFP 51 5*	42	two membranes, one on front one on side
AP2 55 NO	64	BFP 51 6	60	two pistons, both on side
AP2 65 NO	85	BFP 51 8	80	two pistons, both on side
AP2 75 NO	110	BFP 51 11	111	two pistons, both on side
AP2 95 NO	130	BFP 51 13	130	two pistonss, both on side
AT2 45 NO,NC	48	BFP 52 5*	42	two membrane, one on front one on side
AT2 55 NO,NC	64	BFP 52 6	60	two pistons, both on side.
AT2 65 NO,NC	85	BFP 52 8	80	two pistons, both on side
AT2 75 NO,NC	110	BFP 52 11	111	two pistons, both on side
AT2 95 NO,NC	130	BFP 52 13	130	two pistons, both on side
AT3 45 NO,NC	48	BFP 53 6	60	two pistons, both on side. Extra high/low port
AT3 55 NO,NC	64	BFP 53 6	60	two pistons, both on side. Extra high/low port
AT3 65 NO,NC	85	BFP 53 8	80	two pistons, both on side. Extra high/low port
A2L 35 NC,NC	40	BFP 12 3 or 5*	24/42	One stage, two NC-valves, membrane reg.
A2L 55 NC,NC	60	BFP 12 6*	60	One stage, two NC-valves, membrane reg.
A2L 65 NC,NC	82	BFP 12 8	80	One stage, two NC-valves, piston reg.
A2L 75 NC,NC	110	BFP 12 11	111	One stage, two NC-valves, piston reg.
A2L 95 NC,NC	130	BFP 12 13	130	One stage, two NC-valves, piston reg.

** BFP housing*

All BFP-types with capacity 8, 11, 13 and 6 with two solenoid valves are in Suntec like housing

Conversion Table

Bigger light oil pumps

All data at 2850 min^{-1}, 10 bar, 5 cSt.

Suntec pump types	Capacity l/h	Danfoss pump types	Capacity l/h	Remarks and differences for Danfoss types
AJ 4	111	RSA 60/BFP 10/11 **	106/111	Not direct interchangeable*
AJ 6	200	RSA 95**	201	Not direct interchangeable*
J 3 old vers.	90	RSA 40/BFP 10 8	78/80	Not direct interchangeable*
J 4 old vers.	110	RSA 60/BFP 10 11	106/111	Not direct interchangeable*
J 6 old vers.	203	RSB 20/RSA 95	180/201	Direct interchangeable/ not direct interchangeable*
J 7	295	RSB 30/RSA 125	290/285	Direct interchangeable/ not direct interchangeable*
J 4 new	175	RSB 20	180	Direct interchangeable
J 6 new	265	RSB 30	290	Direct interchangeable
------	-------	RSB 40	410	For this capacity Suntec TA 2 is used
------	-------	RSB 60	600	For this capacity Suntec TA 2 or TA 3 is used

**Not direct interchangeable means different pump configuration, shaft and neck diameter.*

***This type will be substituted by a new Danfoss type in year 2003*

Conversion Table

Bigger heavy oil pumps

All data at 2850 min^{-1}, 20 bar, 20 cSt.

Suntec pump types	Capacity l/h	Danfoss pump types	Capacity l/h	Remarks and differences for Danfoss types
D 45	40	RSH 32**	85	Interchangeable/not direct interchangeable*
D 47	52	RSH 32**	85	Interchangeable/notot direct interchangeable*
D 55	56	RSH 32**	85	Interchangeable/notot direct interchangeable*
D 57	70	RSH 32**	85	Interchangeable/notot direct interchangeable*
D 67	93	RSH 32/ 63**	85/135	Interchangeable/notot direct interchangeable*
E 4 1001 old	120	RSF 21/ RSH 63	160/135	Interchangeable/not direct interchangeable
E 6 1001 old	220	RSF 31	270	Interchangeable
E 7 1001	330	RSF 41	395	Interchangeable
---	---	RSF 61	595	For this capacity Suntec TA 2
E 4 1069 old	120	RSFH 21	160	Interchangeable
E 6 1069 old	220	RSFH 31	270	Interchangeable
E 7 1069	330	RSFH 41	395	Interchangeable
---	---	RSFH 61	595	For this capacity Suntec TA 2
E 4 1001 New	180	RSF 21	160	Interchangeable
E 6 1001 New	270	RSF 31	270	Interchangeable
---	---	RSF 41	395	No Suntec type available
---	---	RSF 61	595	No Suntec type available
E 4 1069 New	180	RSFH 21	160	Interchangeable
E 6 1069 New	270	RSFH 31	270	Interchangeable
---	---	RSFH 41	395	No Suntec type available
---	---	RSFH 61	595	No Suntec type available

** Not interchangeable with D-pumps with neck diameter Ø 32 and with shaft diameter Ø 8.*

*** This type will be substituted by a new Danfoss type in year 2003*

Conversion Table

Big pumps for heavy and light oil

All data at 2850 min^{-1}, 20 bar, 20 cSt.

Suntec pump types	Capacity l/h	Danfoss pump types	Capacity l/h	Remarks
TA 2	490	KSM 50/RSFH 61	510/595	Direct interchangeable/ RS- Smaller size
TA 3	600	KSM 70/RSFH 61	750/595	Direct interchangeable/ RS- Smaller size
TA 3	740	KSM 70	750	Direct interchangeable
TA 4	990	KSM 100	1000	Direct interchangeable
TA 5	1370	KSM 140	1450	Direct interchangeable
T 2	1400	KSU 140	1500	Direct interchangeable
T 3	2000	KSU 200	2200	Direct interchangeable
T 4	2750	KSU 260	2900	Direct interchangeable
T 5	3900	KSU 380	4000	Direct interchangeable

Danfoss Oil Pumps and Valves for Industrial Applications

Conversion Table
SAFAG to Danfoss





Technical Information

The transfer of the production of SAFAG pumps and pressure valves to Danfoss in Denmark means some changes in the product programme. Some pump types will not be transferred and the basic programme will be reduced.
The code numbers and the designation will be changed. The standard types available appear from the conversion list.
Types not mentioned in the list, like A, K, SNG, T and double pumps, will no longer be produced.
Pressure valves will also be offered in a reduced programme. Model GK, types with flanges and types with hand wheel will no longer be produced.

Motor pumps, aggregates and some special pump and valve versions can be supplied from OEG in Germany.

The pumps
The conversion list for pumps, table 1a, 1b and 1c, shows the SAFAG types converted into Danfoss types. We have listed them in increasing size for each type. If a pump type is missing in the list, please ask for your specific needs at the Burner Components Division, Danfoss, Nordborg.
The standard pumps will be made in either a type 4 or a type 2 version. Type 2 means pressure range of 2 to 9 bar and type 4 means pressure range 15 to 40 bar.
To cover pressure ranges 2, 3 and 4 for the standard programme a specific pump code number will cover all three types of springs as follows:
If a pump delivered as a type 2, the packing will contain a clearly marked type 3 and a type 4 spring.
If a pump delivered as a type 4, the packing will contain a clearly marked type 2 and a type 3 spring.
The pressure ranges 0 and 1 will not be covered by this system and you will have to order these springs separately. You will find code numbers for all spring types in table 3.
You will have to change the spring to the wanted pressure range yourself.

The springs will be packed in a plastic bag including a self-adhesive label indicating the pressure range. This label must be used to identify the changed pump pressure range.
The pumps will all* be with roller bearings (former called WL type) and therefore we allow the change of pressure area for all pumps. Also we allow the pumps to run at both 1400 and at 2800 min^{-1} for types below 600 l/h measured at 1400 min^{-1}.
When ordering pumps the Danfoss code number 070Hxxxx must be used.
The pumps will have a label with Danfoss code number, the new Danfoss designation and the old SAFAG designation.
SAFAG type B will have the designation KSBxxxx
SAFAG type VB and VB/R will have the designation KSVBxxxx
SAFAG type NV will have the designation KSNxxxx

Example: VBHRGDC-4 will have the code number 070H1049 and the designation KSVB2000R.
2000 is indicating the capacity at 1400 min^{-1} and R means right hand rotation. The pump has the pressure range 15 to 40 bar. In the packing for this pump code number you will find a spring type 2 code number 070H0024 and a spring type 3 code number 070H0025.

* The KSB types up to 600 l/h will get roller bearings as from beginning of year 2002.

The valves
The conversion list for valves table 2 shows that we have kept the old SAFAG designation, but again the Danfoss code number must be used when ordering.
As for the valves there are separate code numbers for all 5 pressure ranges.

The Pump List – The former type B *(table 1a)*

SAFAG Code No.	SAFAG Designation	DANFOSS Type	DANFOSS Code no.
324-030-0020	BPDC	KSB 45R	070H1083
324-031-0020	BPIC	KSB 45L	070H1084
324-040-0020	BMDC	KSB 80R	070H1085
324-041-0020	BMIC	KSB 80L	070H1086
324-050-0020	BGDC	KSB 120R	070H1012
324-051-0020	BGIC	KSB 120L	070H1087
324-060-0020	BFDC	KSB 160R	070H1000
324-061-0020	BFIC	KSB 160L	070H1013
331-030-0020	BGPDC	KSB 300R	070H1014
331-031-0020	BGPIC	KSB 300L	070H1015
331-040-0020	BGMDC	KSB 450R	070H1016
331-041-0020	BGMIC	KSB 450L	070H1017
331-050-0020	BGGDC	KSB 600R	070H1001
331-051-0020	BGGIC	KSB 600L	070H1018
431-030-0130	BHPDC	KSB 1000R	070H1008
431-031-0130	BHPIC	KSB 1000L	070H1093
431-040-0130	BHMDC	KSB 1500R	070H1009
431-041-0130	BHMIC	KSB 1500L	070H1010
431-050-0130	BHGDC	KSB 2000R	070H1011
431-051-0130	BHGIC	KSB 2000L	070H1043
456-030-0130	BHGPDC	KSB 3000R	070H1044
456-031-0130	BHGPIC	KSB 3000L	070H1094
456-040-0130	BHGMDC	KSB 4500R	070H1045
456-041-0130	BHGMIC	KSB 4500L	070H1095

The Pump List – The former type VB *(table 1b)*

SAFAG Code no.	SAFAG Designation	Danfoss Type	Danfoss Code no.
374-031-0024	VBPIC-2	KSVB 45L	070H1089
374-030-0024	VBPDC-2	KSVB 45R	070H1088
374-030-0028	VBPDC-4	KSVB 45R	070H1030
374-041-0024	VBMIC-2	KSVB 80L	070H1090
374-040-0024	VBMDC-2	KSVB 80R	070H1031
374-051-0024	VBGIC-2	KSVB 120L	070H1033
374-050-0024	VBGDC-2	KSVB 120R	070H1032
374-060-0024	VBFDC-2	KSVB 160R	070H1003
374-061-0024	VBFIC-2	KSVB 160L	070H1034
372-031-0024	VBGPIC-2	KSVB 300L	070H1021
372-030-0024	VBGPDC-2	KSVB 300R	070H1019
372-030-0028	VBGPDC-4	KSVB 300R	070H1020
372-041-0024	VBGMIC-2	KSVB 450L	070H1025
372-040-0024	VBGMDC-2	KSVB 450R	070H1022
372-040-0028	VBGMDC-4	KSVB 450R	070H1024
372-051-0024	VBGGIC-2	KSVB 600L	070H1028
372-051-0028	VBGGIC-4	KSVB 600L	070H1029
372-050-0024	VBGGDC-2	KSVB 600R	070H1026
372-050-0028	VBGGDC-4	KSVB 600R	070H1027
420-031-0254	VBHPIC-2	KSVB 1000L	070H1037
420-030-0254	VBHPDC-2	KSVB 1000R	070H1035
420-030-0258	VBHPDC-4	KSVB 1000R	070H1036
420-041-0254	VBHMIC-2	KSVB 1500L	070H1091
420-040-0254	VBHMDC-2	KSVB 1500R	070H1038
420-040-0258	VBHMDC-4	KSVB 1500R	070H1039
420-051-0254	VBHGIC-2	KSVB 2000L	070H1092
420-051-0258	VBHGIC-4	KSVB 2000L	070H1042
420-050-0254	VBHGDC-2	KSVB 2000R	070H1040
420-050-0258	VBHGDC-4	KSVB 2000R	070H1041
465-030.0258	VBHGPDC-4	KSVB 3000R	070H1046
465-031-0254	VBHGPIC-2	KSVB 3000R	070H1096
465-041-0254	VBHGMIC-2	KSVB 4500L	070H1097
465-040-0258	VBHGMDC-4	KSVB 4500R	070H1047
465-051-0254	VBHGGIC-2	KSVB 6000L	070H1064
465-050-0258	VBHGGDC-4	KSVB 6000R	070H1048

The Pump List – The former type VB/R/ NVB *(table 1c)*

SAFAG Code no.	SAFAG Designation	DANFOSS Type	Danfoss Code no.
484-041-0024	VBRMIC-2	KSVB 80L	070H1104
484-040-0024	VBRMDC-2	KSVB 80R	070H1103
484-061-0024	VBRFIC-2	KSVB 160L	070H1106
484-060-0024	VBRFDC-2	KSVB 160R	070H1105
381-031-0024	VBGRPIC-2	KSVB 300L	070H1023
381-030-0024	VBGRPDC-2	KSVB 300R	070H1002
381-041-0024	VBGRMIC-2	KSVB 450L	070H1056
381-040-0024	VBGRMDC-2	KSVB 450R	070H1070
381-051-0024	VBGRGIC-2	KSVB 600L	070H1062
381-050-0024	VBGRGDC-2	KSVB 600R	070H1110
466-031-0254	VBHRPIC-2	KSVB 1000L	070H1099
466-030-0254	VBHRPDC-2	KSVB 1000R	070H1098
466-041-0254	VBHRMIC-2	KSVB 1500L	070H1101
466-040-0254	VBHRMDC-2	KSVB 1500R	070H1100
466-051-0254	VBHRGIC-2	KSVB 2000L	070H1102
466-050-0258	VBHRGDC-4	KSVB 2000R	070H1049
465-060-0259	VBHGRPDC-4	KSVB 3000R	070H1066
465-080-0258	VBHGRGDC-4	KSVB 6000R	070H1072

The former type NVB

575-040-0028	NVBRMDC-4	KSN 80R	070H1050
575-250-0028	NVBRGDC-4	KSN 120R	070H1054
575-260-0028	NVBRFDC-4	KSN 160R	070H1057
576-231-0028	NVBGRPIC-4	KSN 300L	070H1069
576-030-0268	NVBGRPDC-4	KSN 300R	070H1063
576-241-0028	NVBGRMIC-4	KSN 450L	070H1071
576-040-0268	NVBGRMDC-4	KSN 450R	070H1065
576-050-0268	NVBGRGDC-4	KSN 600R	070H1067
810-021-0258	NVBHRPIC-4	KSN 1000L	070H1082
810-020-0254	NVBHRPDC-2	KSN 1000R	070H1079
810-020-0259	NVBHRPDC-4	KSN 1000R	070H1080
810-031-0278	NVBHRMIC-4	KSN 1500L	070H1107
810-030-0259	NVBHRMDC-4	KSN 1500R	070H1081
810-041-0258	NVBHRGIC-4	KSN 2000L	070H1109
810-040-0258	NVBHRGDC-4	KSN 2000R	070H1108

The Valve List *(table 2)*

If a valve type is missing in the list please ask for your specific needs at The Burner Components Division, Danfoss, Nordborg.

SAFAG Code no.	Danfoss/ SAFAG Type		Danfoss Code no.
533-212-0010	B-PP-E-0	G 1/4	070H0117
533-212-0011	B-PP-E-1	G 1/4	070H0118
533-212-0012	B-PP-E-2	G 1/4	070H0119
533-212-0013	B-PP-E-3	G 1/4	070H0120
533-212-0014	B-PP-E-4	G 1/4	070H0121
509-230-0090	B-P-E-0	G 3/8	070H0125
509-230-0091	B-P-E-1	G 3/8	070H0126
509-230-0092	B-P-E-2	G 3/8	070H0127
509-230-0093	B-P-E-3	G 3/8	070H0128
509-230-0094	B-P-E-4	G 3/8	070H0129
509-260-0170	B-G-E-0	G 3/8	070H0100
509-260-0171	B-G-E-1	G 3/8	070H0101
509-260-0172	B-G-E-2	G 3/8	070H0102
509-260-0173	B-G-E-3	G 3/8	070H0103
509-260-0174	B-G-E-4	G 3/8	070H0104
509-261-0170	B-G-E-0	G 1/2	070H0131
509-261-0171	B-G-E-1	G 1/2	070H0132
509-261-0172	B-G-E-2	G 1/2	070H0133
509-261-0173	B-G-E-3	G 1/2	070H0134
509-261-0174	B-G-E-4	G 1/2	070H0135
463-220-0250	B-GH-E-0	G 3/4	070H0105
463-220-0251	B-GH-E-1	G 3/4	070H0106
463-220-0252	B-GH-E-2	G 3/4	070H0107
463-220-0253	B-GH-E-3	G 3/4	070H0108
463-220-0254	B-GH-E-4	G 3/4	070H0109
522-260-0330	B-GHG-E-0	G 1	070H0110
522-260-0331	B-GHG-E-1	G 1	070H0111
522-260-0332	B-GHG-E-2	G 1	070H0112
522-260-0333	B-GHG-E-3	G 1	070H0113
522-260-0334	B-GHG-E-4	G 1	070H0114

The List of Springs

- All pump types KSVB and KSN up to 600 l/h uses springs from first column.
- All pump types KSVB and KSN from 1000 l/h up to 2000 l/h uses springs from second column.
- All pump types KSVB and KSN from 3000 l/h up to 6000 l/h uses springs from third column.

Pump Capacity	Up to 600 l/h	1000 to 2000 l/h	3000 to 6000 l/h
Pressure 0,5 to 1,5 bar, type 0	070H0019	070H0022	070H0027
Pressure 1 to 4 bar, type 1	070H0000	070H0023	070H0028
Pressure 2 to 9 bar, type 2	070H0001	070H0024	070H0029
Pressure 6 to 25 bar, type 3	070H0020	070H0025	070H0030
Pressure 15 to 40 bar, type 4	070H0021	070H0026	070H0031



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