



## Dedicated Oil Coolers – DOC™

### Brazed Plate Heat Exchangers



#### Working principles

The heating surface consists of thin corrugated metal plates stacked on top of each other. Channels are formed between the plates and corner ports are arranged so that the two media flow through alternate channels, normally in full counter-current flow. The media are kept in the unit by a brazed seal around the edge of the plates. The contact points of the plates are also brazed to withstand the pressure of the media handled.

#### Standard design

The plate pack is covered by the cover plates. The connections are located in the front cover plate. The channel plates are corrugated to improve heat transfer efficiency and to increase the mechanical strength.

#### Standard materials

Cover plates: Stainless steel 304  
Connections: Stainless steel 304  
Plates: Stainless steel 316  
Brazing material: Copper

#### Particulars required for quotation

To enable Alfa Laval's representative to make a specific quotation, enquiries should be accompanied by the following particulars:

- Flow rates required
- Temperature program
- Physical properties of liquids in question
- Desired working pressure
- Maximum permitted pressure drops

# Technical data for Dedicated Oil Coolers

## Standard data

	DOC14	DOC20	DOC30	DOC60	DOC77	DOC77HF
Max. working temperature	225°C	225°C	225°C	225°C	225°C	225°C
Min. working temperature	-196°C	-196°C	-196°C	-196°C	-196°C	-196°C
Max. working pressure						
S1-S2/S3-S4, bar	33/33	16/16	33/33	40/40	16/30	16/30
Min. working pressure	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
Volume per channel, litres	0.02	0.028	0.05	0.103	0.25	0.25
Cooling capacity, kW	< 16	6-75	10-100	20-140	40-170	120-360
Standard number of plates	14, 20	20, 40, 60, 90, 110	10, 18, 24, 34, 50, 70, 100	20, 30, 40, 50, 60, 70, 80	20, 30, 40, 50	60, 70, 80, 90, 100

## Dimensions

Type	a	b	c	d	e	A	Dry weight, kg
DOC14	172	42	208	78	22	$8 + n \times 2.25$	$0.8 + n \times 0.06$
DOC20	270	46	324	94	26	$8 + n \times 1.50$	$1.5 + n \times 0.08$
DOC30	250	50	313	113	26	$9 + n \times 2.35$	$2.4 + n \times 0.10$
DOC60	466	50	527	113	26	$13 + n \times 2.35$	$2.1 + n \times 0.18$
DOC77	519	92	618	191	26	$10 + n \times 2.85$	$11.0 + n \times 0.44$
DOC77HF	519	92	633	191	26	$10 + n \times 2.85$	$13.0 + n \times 0.44$

n = number of plates

## Connections

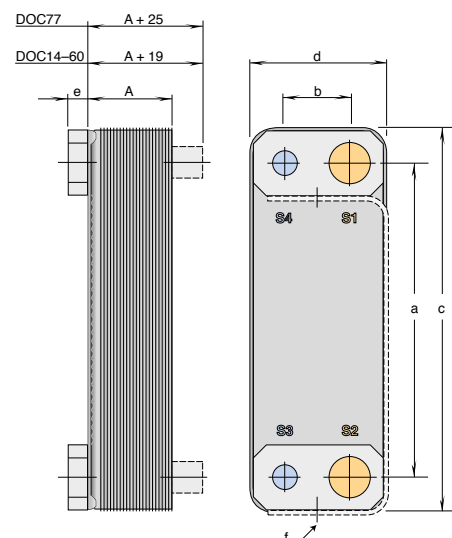
Type	S1-S2, oil	S3-S4, water	Spanner grip	f
DOC14	ISO-G 3/4"	ISO-G 3/4"	32	M8
DOC20	ISO-G 1"	ISO-G 3/4"	41	M8
DOC30	ISO-G 1 1/4"	ISO-G 3/4"	50	M8
DOC60	ISO-G 1 1/4"	ISO-G 3/4"	50	M8
DOC77	ISO-G 1 1/2"	ISO-G 1"	80	M8
DOC77HF	SAE 2 1/2"	ISO-G 1 1/4"	114	M10

## Support bracket dimensions

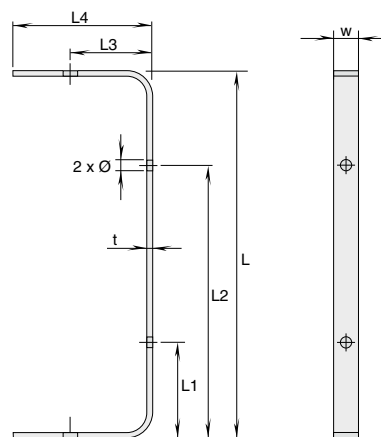
Type	L	L1	L2	L3	L4	w	t	Ø
DOC14	177	57	119	44	78	20	5	9
DOC20	275	85	189	51	94	25	6	9
DOC30	255	75	179	58	100	25	6	9
DOC60	471	75	395	58	100	25	6	9
DOC77	524	149	372	106	180	25	8	11
DOC77HF	524	149	372	106	180	25	8	11

## Nipple connections (optional)

DOC14, 20, 30, 60	ISO-G 1/2" int. thread
DOC77, 77HF	ISO-G 1" int. thread



DOC dimensioning



Support bracket

EFU00039EN 1005

Alfa Laval reserves the right to change specifications without prior notification.

## How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)



# DOC14

## Datablad

### Standard data

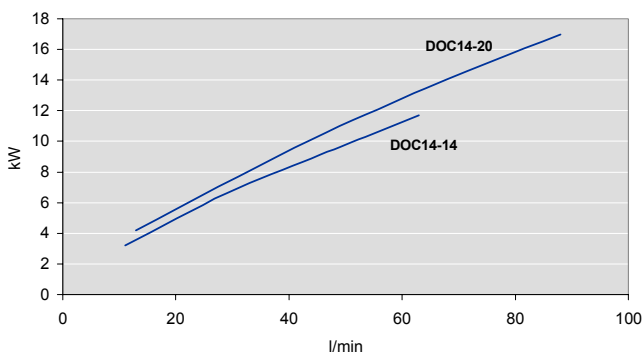
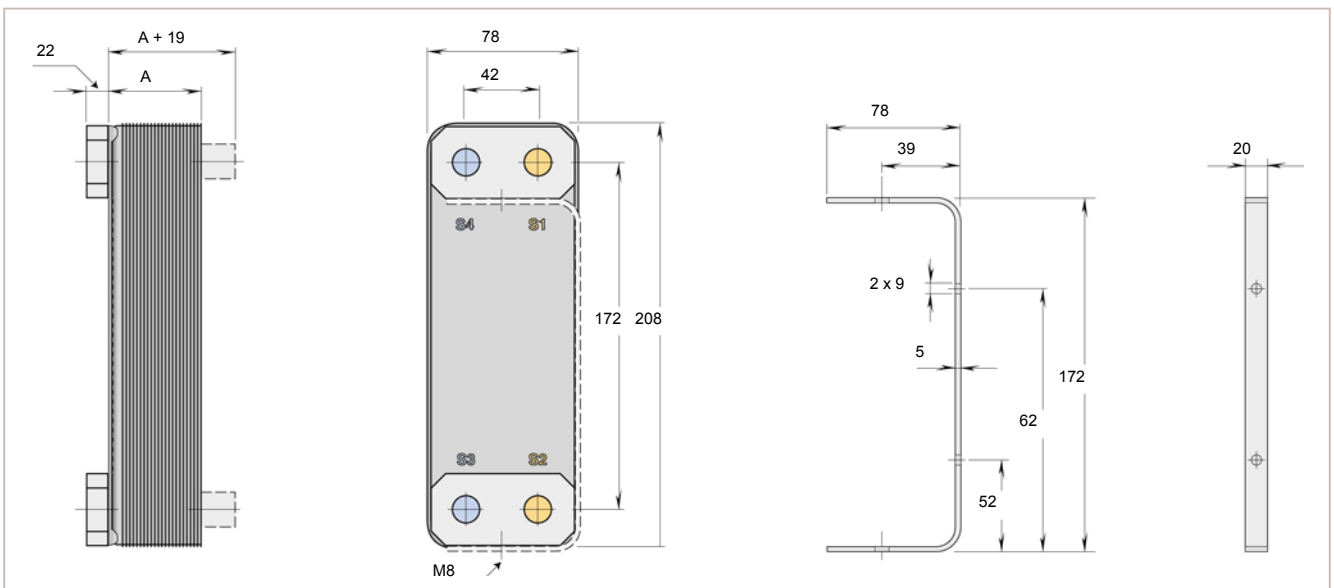
Antal plattor	14, 20
Max arbetstemperatur	175 °C
Min arbetstemperatur	-160 °C
Max arbetstryck S1-S2/S3-S4	32/32 bar
Volym per kanal, liter	0,028 l
Kyleffekt	< 16 kW

### Anslutningar

S1-S2, olja	ISO-G 3/4"
S3-S4, vatten	ISO-G 3/4"
Nyckelvidd	32
Kontrollanslutningar (tillval)	ISO-G 1/2" inv. gänga

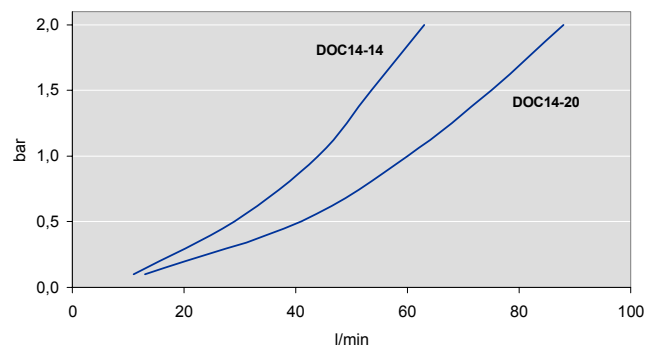
### Plattor/storlek/vikt

	14	20
Tom vikt, kg	3,04	3,4
Djup, mm = A (se ritning nedan)	40,9	55



### Förutsättningar för diagrammen

Temperatur i olja: 60 °C, vatten: 20 °C  
Olja ISO VG 32 och olje-/vattenflöde 2/1



För andra ingångsdata för oljetyp, temperaturer och flöden hänvisas till beräkningsprogrammet Alfa Select Oil Cooler. Kontakta din återförsäljare för att få ett exemplar av programmet eller för support.



# DOC20

## PD leaflet

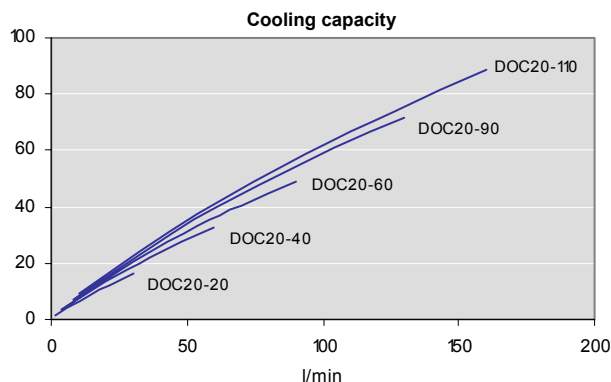
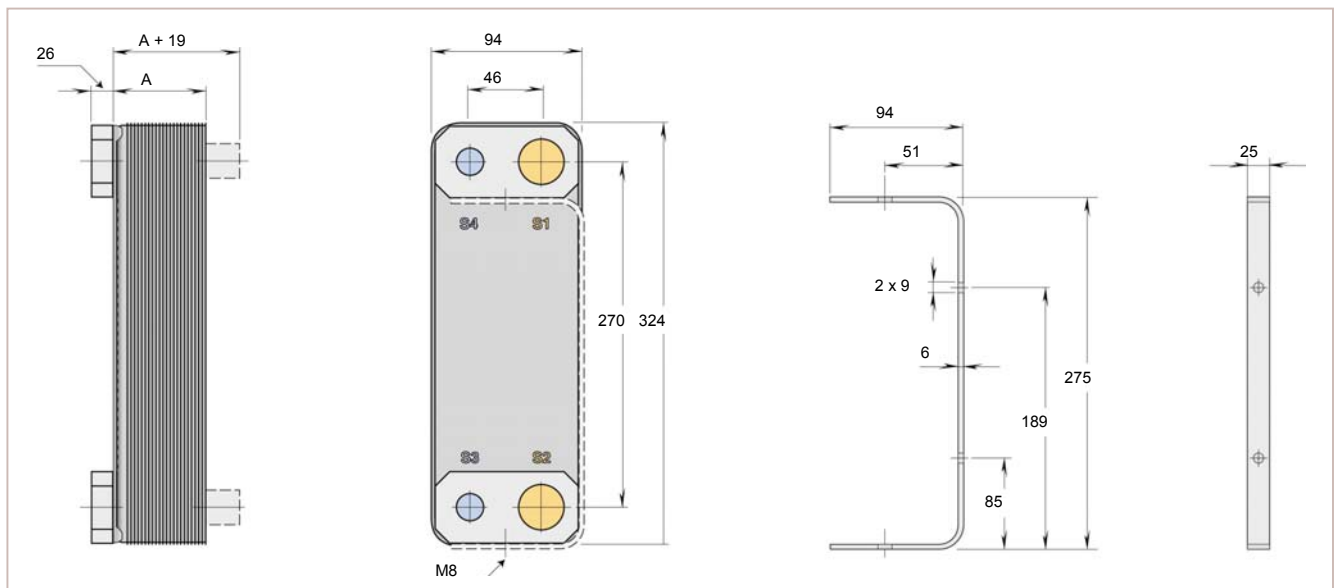
### Standard data

Number of plates	20, 40, 60, 90, 110
Max. working temperature	225°C
Min. working temperature	-160°C
Max. work. pressure oil (S1-S2)/water (S3-S4)	16/16 bar
Min. working pressure	Vacuum
Volume per channel, litres	0.028 l
Cooling capacity	6-75 kW

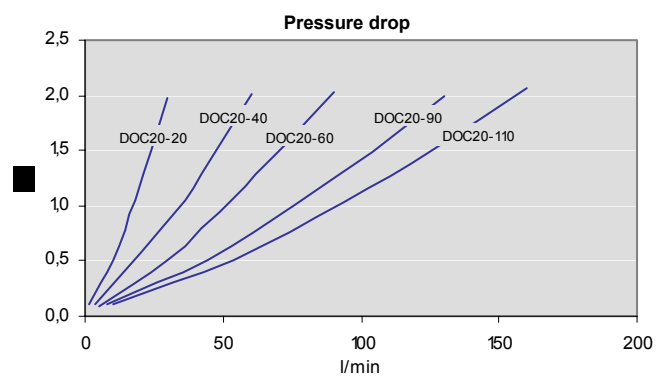
### Connections

S1-S2, oil	ISO-G 1"
S3-S4, water	ISO-G 3/4"
Spanner grip	41
Nipple connections (optional)	ISO-G 1/2" int. thread

Plates/dimensions/weight	20	40	60	90	110
Dry weight, kg	3.1	4.7	6.3	8.7	10.3
Depth, mm = A (see drawing below)	38	68	98	143	173



**Conditions for the diagrams**  
 Oil temperature: 60°C, water: 20°C  
 Oil ISO VG 32 and oil-/water flow 2/1



For other data regarding oils, temperatures and flow rates we refer to the calculation program Alfa Select Oil Cooler. Contact your representative to get a copy of the program or for support.



# DOC27

## Datablad

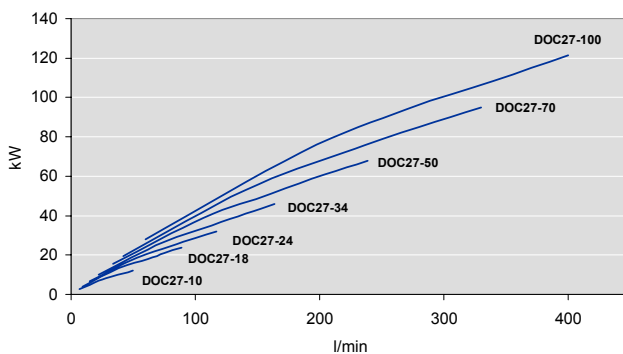
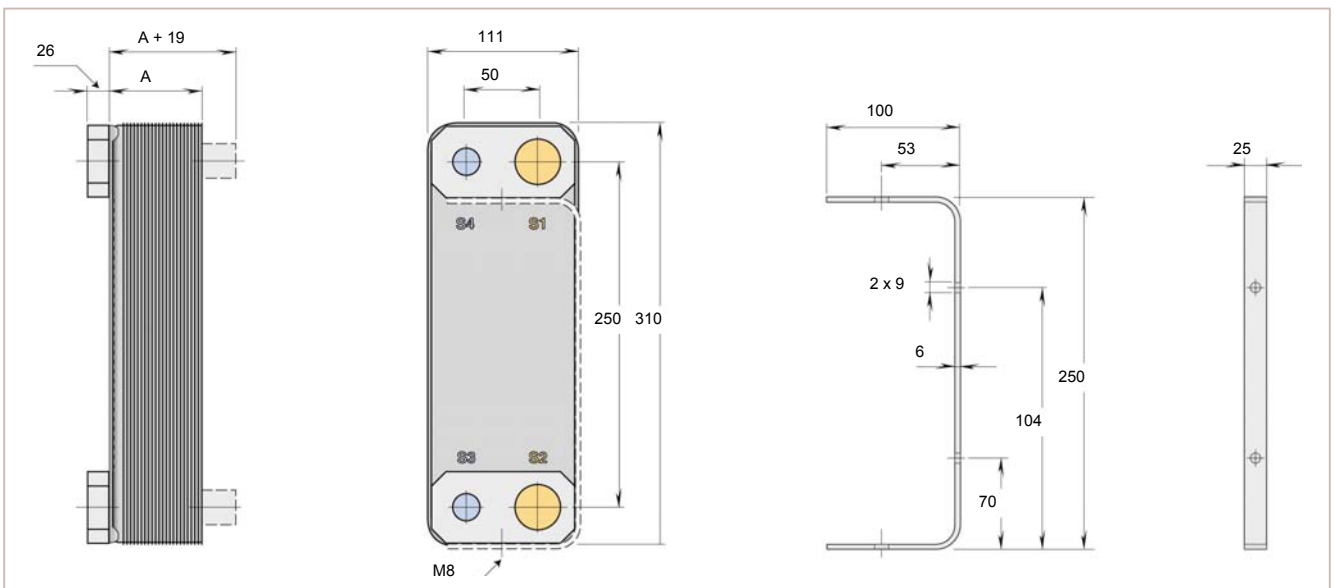
### Standard data

Antal plattor	10, 18, 24, 34, 50, 70, 100
Max arbetstemperatur	175 °C
Min arbetstemperatur	-160 °C
Max arbetstryck S1-S2/S3-S4	32/32 bar
Volym per kanal, liter	0,06 l
Kyleffekt	10–100 kW

### Anslutningar

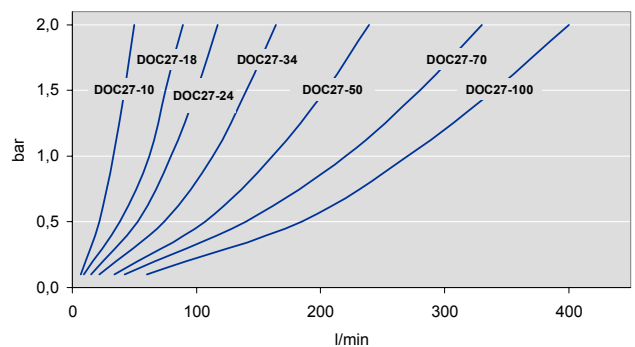
S1-S2, olja	ISO-G 1 1/4"
S3-S4, vatten	ISO-G 3/4"
Nyckelvidd	50
Kontrollanslutningar (tillval)	ISO-G 1/2" inv. gänga

Plattor/storlek/vikt	10	18	24	34	50	70	100
Tom vikt, kg	3,7	4,74	5,52	6,82	8,9	11,5	15,4
Djup, mm = A (se ritning nedan)	33	52,2	66,6	90,6	129	177	249



### Förutsättningar för diagrammen

Temperatur i olja: 60 °C, vatten: 20 °C  
Olja ISO VG 32 och olje-/vattenflöde 2/1



För andra ingångsdata för oljetyp, temperaturer och flöden hänvisas till beräkningsprogrammet Alfa Select Oil Cooler. Kontakta din återförsäljare för att få ett exemplar av programmet eller för support.



# DOC52

## Datablad

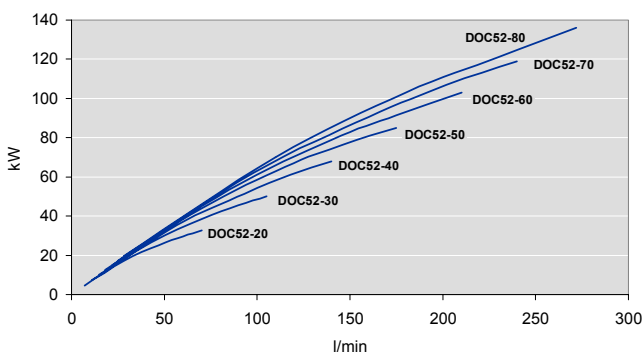
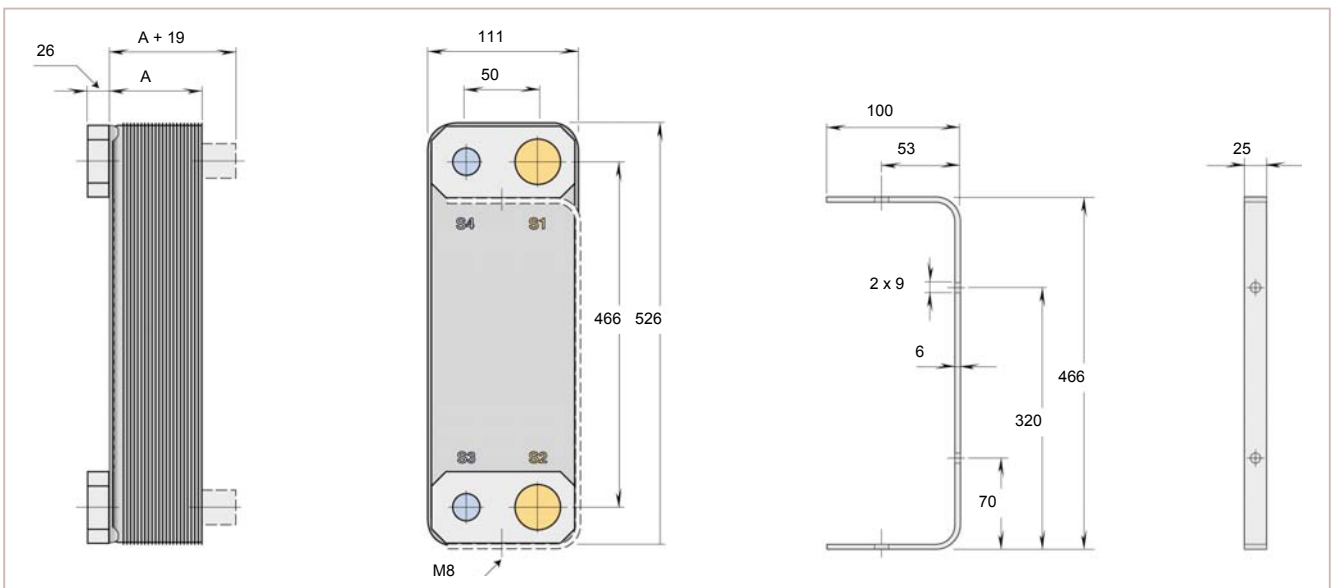
### Standard data

Antal plattor	20, 30, 40, 50, 60, 70, 80
Max arbetstemperatur	175 °C
Min arbetstemperatur	-160 °C
Max arbetstryck S1-S2/S3-S4	32/32 bar
Volym per kanal, liter	0,1 l
Kyleffekt	20-110 kW

### Anslutningar

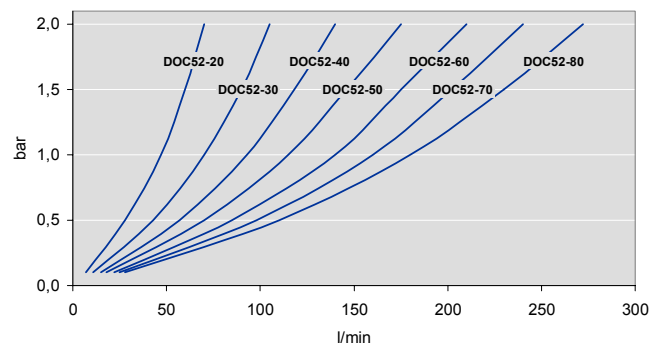
S1-S2, olja	ISO-G 1 1/4"
S3-S4, vatten	ISO-G 3/4"
Nyckelvidd	50
Kontrollanslutningar (tillval)	ISO-G 1/2" inv. gänga

Plattor/storlek/vikt	20	30	40	50	60	70	80
Tom vikt, kg	7,6	9,9	12,2	14,5	16,8	19,1	21,4
Djup, mm = A (se ritning nedan)	57	81	105	129	153	177	201

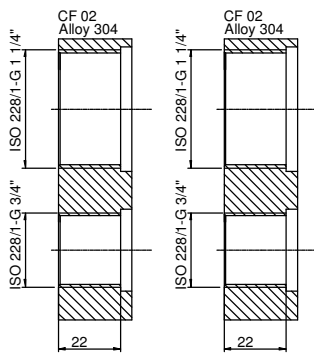


### Förutsättningar för diagrammen

Temperatur i olja: 60 °C, vatten: 20 °C  
Olja ISO VG 32 och olje-/vattenflöde 2/1



För andra ingångsdata för oljetyp, temperaturer och flöden hänvisas till beräkningsprogrammet Alfa Select Oil Cooler. Kontakta din återförsäljare för att få ett exemplar av programmet eller för support.



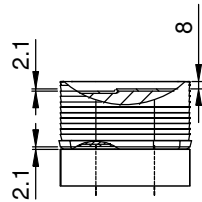
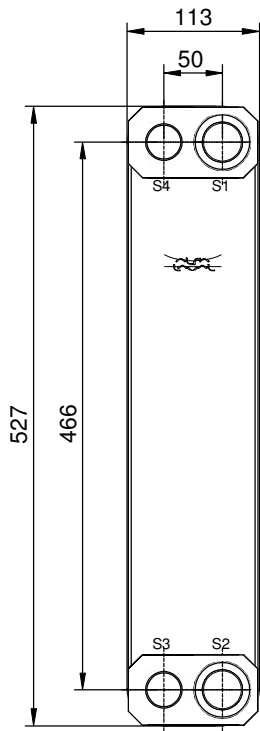
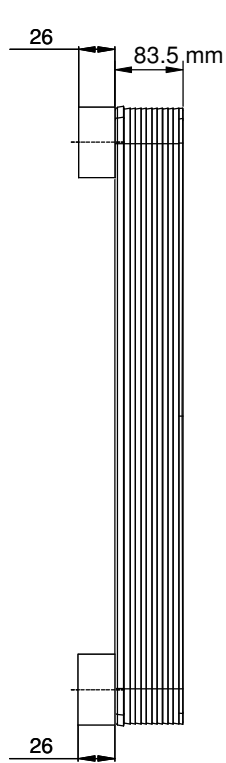
HEATING SURFACE m<sup>2</sup>  
 NETWEIGHT 8.599 kg  
 OPERATING WEIGHT

PLATE MATERIAL Alloy 316  
 PLATE THICKNESS 0.3 mm  
 PLATE GROUPING 1\*15H/1\*14H

TOTAL LENGTH 109.5  
 TOTAL WIDTH 113.0  
 TOTAL HEIGHT 527.0



ALL DIMENSIONS IN MILLIMETERS



Frameplate is depressed 2.1 mm  
 at connections S3 and S4 if holed.  
 Pressureplate is depressed 2.1 mm  
 at connections T3 and T4 if holed.

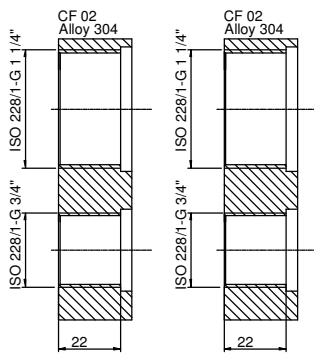
T1 T2 T3 T4 locations on back side  
 correspond to S1 S2 S3 S4 on front side

MEDIA	INLET	TEMP.	OUTLET	TEMP.	FLOW RATE	PRESSURE DROP	LIQUID VOL.
	S4		S3				1.442 dm <sup>3</sup>
	S2		S1				

SUPPLIER	REF.	MP NO.
AGENT / REF.		
CUSTOMER NAME / REF. NO.		
SIGN.		

PLATE HEAT EXCHANGER  
**DOC60-30H-F**  
 PED

ITEM ID.	
DATE 2010-03-22	REV No. 0



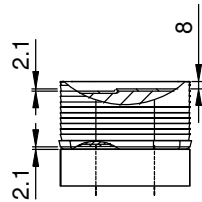
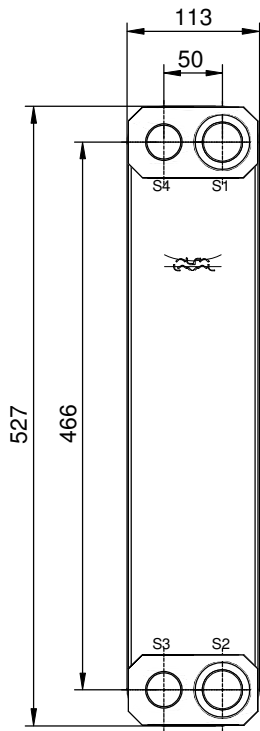
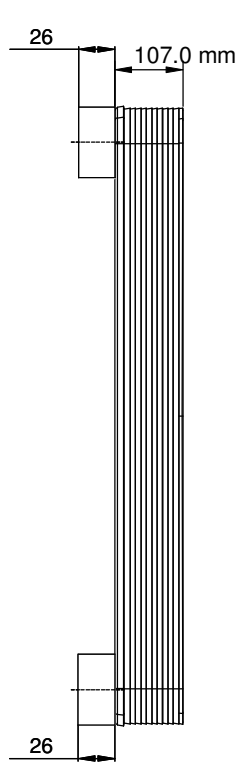
HEATING SURFACE      m<sup>2</sup>  
 NETWEIGHT            10.36 kg  
 OPERATING WEIGHT

PLATE MATERIAL      Alloy 316  
 PLATE THICKNESS    0.3 mm  
 PLATE GROUPING     1\*20H/1\*19H

TOTAL LENGTH        133.0  
 TOTAL WIDTH          113.0  
 TOTAL HEIGHT        527.0



ALL DIMENSIONS IN MILLIMETERS



Frameplate is depressed 2.1 mm  
 at connections S3 and S4 if holed.  
 Pressureplate is depressed 2.1 mm  
 at connections T3 and T4 if holed.

T1 T2 T3 T4 locations on back side  
 correspond to S1 S2 S3 S4 on front side

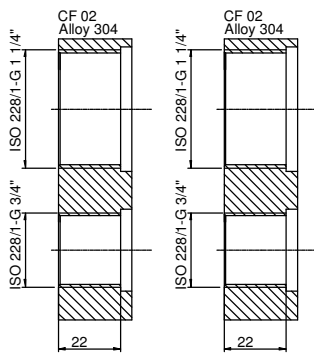
MEDIA	INLET	TEMP.	OUTLET	TEMP.	FLOW RATE	PRESSURE DROP	LIQUID VOL.
	S4		S3				1.957 dm <sup>3</sup>
	S2		S1				

SUPPLIER	REF.	MP NO.
AGENT / REF.		
CUSTOMER NAME / REF. NO.		
SIGN.		

PLATE HEAT EXCHANGER  
**DOC60-40H-F**  
 PED

ITEM ID.	
DATE 2010-03-08	REV No. 0



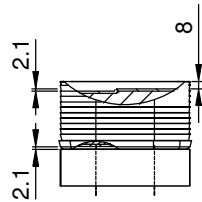
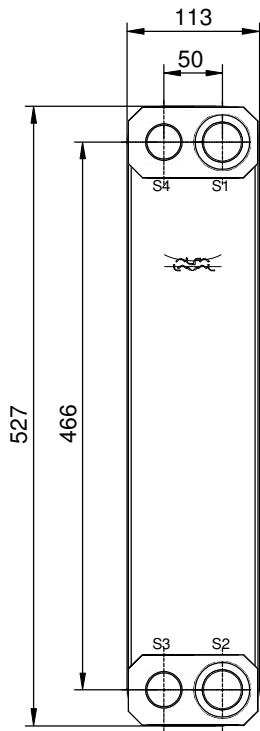
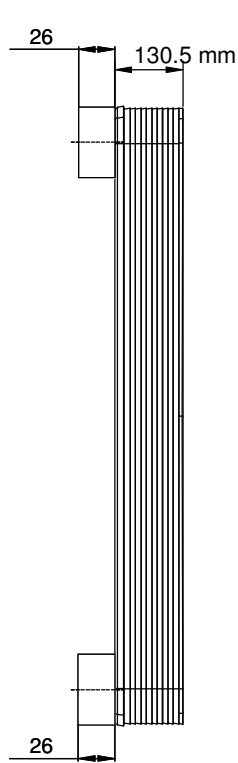


HEATING SURFACE 2.784 m<sup>2</sup> PLATE MATERIAL Alloy 316  
 NETWEIGHT 12.12 kg PLATE THICKNESS 0.3 mm  
 OPERATING WEIGHT PLATE GROUPING 1\*25H/1\*24H

TOTAL LENGTH 156.5  
 TOTAL WIDTH 113.0  
 TOTAL HEIGHT 527.0



ALL DIMENSIONS IN MILLIMETERS



Frameplate is depressed 2.1 mm at connections S3 and S4 if holed.  
 Pressureplate is depressed 2.1 mm at connections T3 and T4 if holed.

T1 T2 T3 T4 locations on back side correspond to S1 S2 S3 S4 on front side

MEDIA	INLET	TEMP.	OUTLET	TEMP.	FLOW RATE	PRESSURE DROP	LIQUID VOL.
	S4		S3				2.472 dm <sup>3</sup>
	S2		S1				

SUPPLIER	REF.	MP NO.
AGENT / REF.		
CUSTOMER NAME / REF. NO.		
SIGN.		

PLATE HEAT EXCHANGER  
**DOC60-50H-F**  
 PED

ITEM ID.	
DATE 2010-02-22	REV No. 0



# DOC77

## Datablad

### Standard data

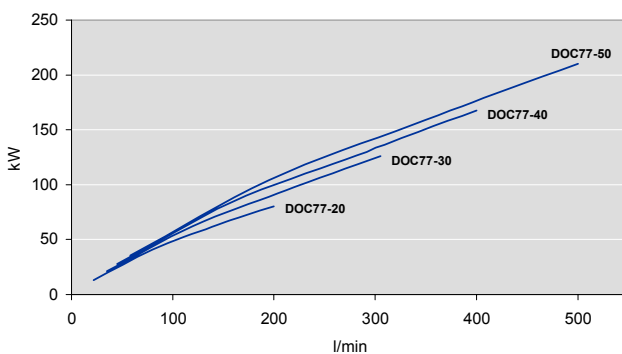
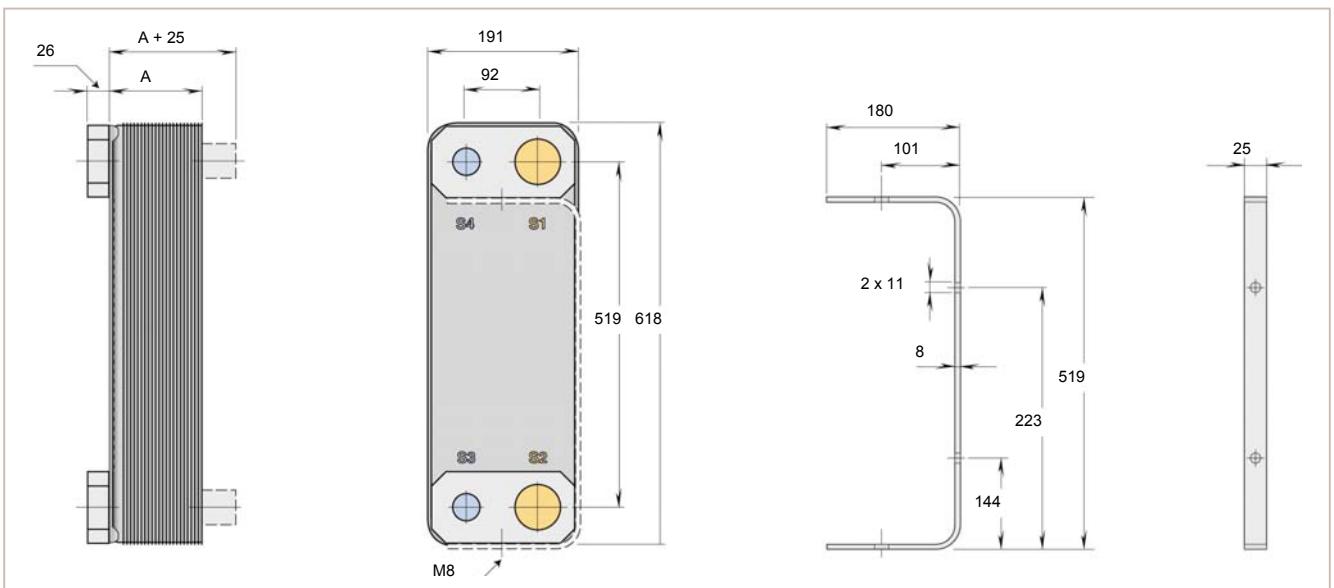
Antal plattor	20, 30, 40, 50
Max arbetstemperatur	175 °C
Min arbetstemperatur	-160 °C
Max arbetstryck S1-S2/S3-S4	16/25 bar
Volym per kanal, liter	0,26 l
Kyleffekt	40-170 kW

### Anslutningar

S1-S2, olja	ISO-G 1 1/2"
S3-S4, vatten	ISO-G 1"
Nyckelvidd	80
Kontrollanslutningar (tillval)	ISO-G 1" inv. gänga

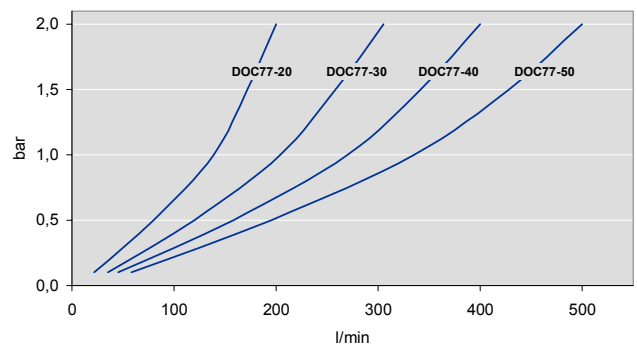
### Plattor/storlek/vikt

	20	30	40	50
Tom vikt, kg	17,8	22,2	26,6	31
Djup, mm = A (se ritning nedan)	67	95,5	124	152,5



### Förutsättningar för diagrammen

Temperatur i olja: 60 °C, vatten: 20 °C  
 Olja ISO VG 32 och olje-/vattenflöde 2/1



För andra ingångsdata för oljetyp, temperaturer och flöden hänvisas till beräkningsprogrammet Alfa Select Oil Cooler. Kontakta din återförsäljare för att få ett exemplar av programmet eller för support.



# DOC77HF

## Datablad

### Standard data

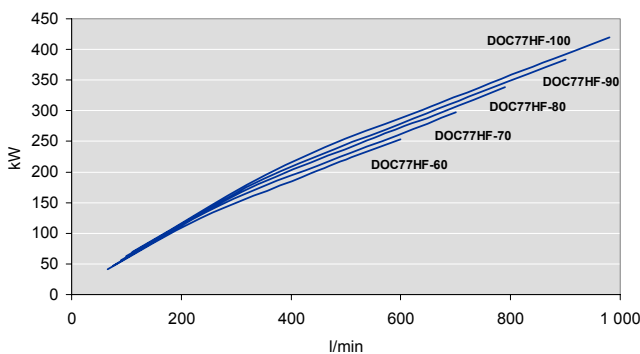
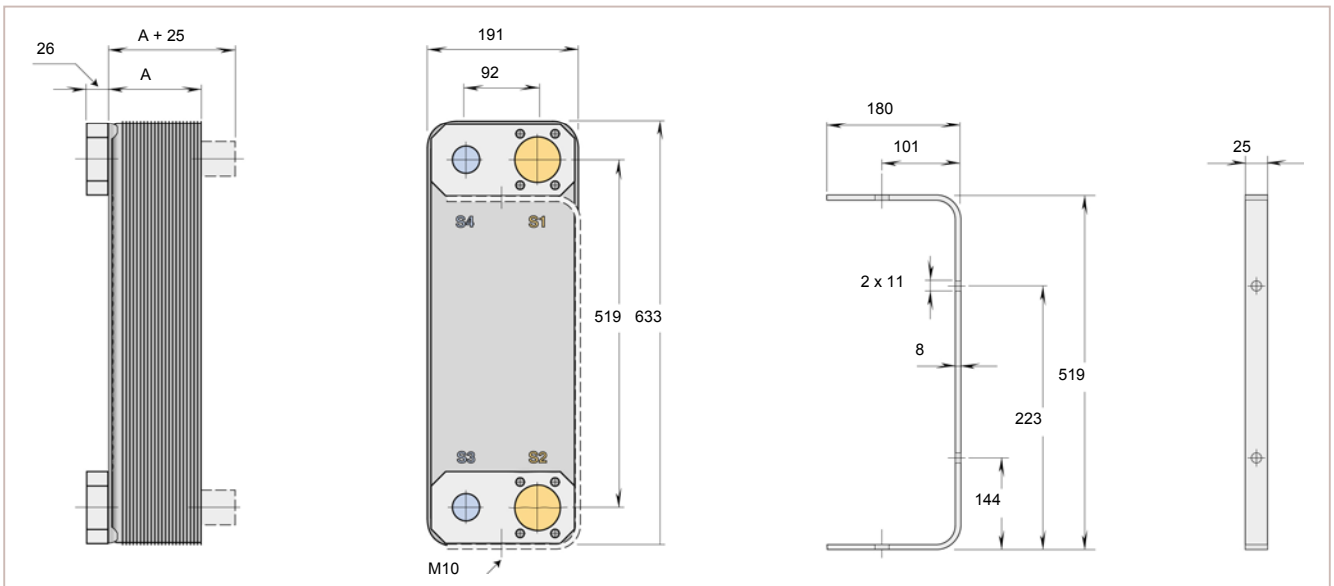
Antal plattor	60, 70, 80, 90, 100
Max arbetstemperatur	175 °C
Min arbetstemperatur	-160 °C
Max arbetstryck S1-S2/S3-S4	16/25 bar
Volym per kanal, liter	0,26 l
Kyleffekt	120–360 kW

### Anslutningar

S1-S2, olja	SAE 2 1/2"
S3-S4, vatten	ISO-G 1 1/4"
Nyckelvidd	–
Kontrollanslutningar (tillval)	ISO-G 1" inv. gänga

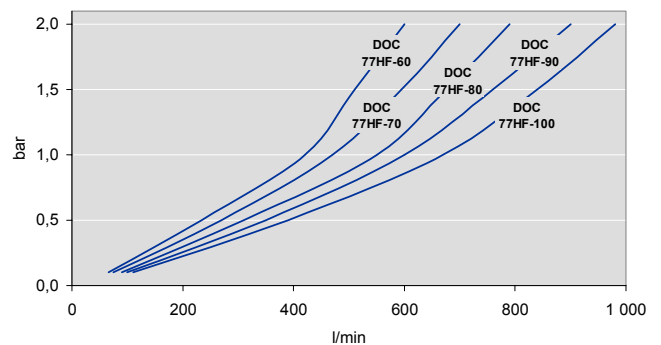
### Plattor/storlek/vikt

	60	70	80	90	100
Tom vikt, kg	37,4	41,8	46,2	50,6	55
Djup, mm = A (se ritning nedan)	181	209,5	238	266,5	295



### Förutsättningar för diagrammen

Temperatur i olja: 60 °C, vatten: 20 °C  
Olja ISO VG 32 och olje-/vattenflöde 2/1



För andra ingångsdata för oljetyp, temperaturer och flöden hänvisas till beräkningsprogrammet Alfa Select Oil Cooler. Kontakta din återförsäljare för att få ett exemplar av programmet eller för support.