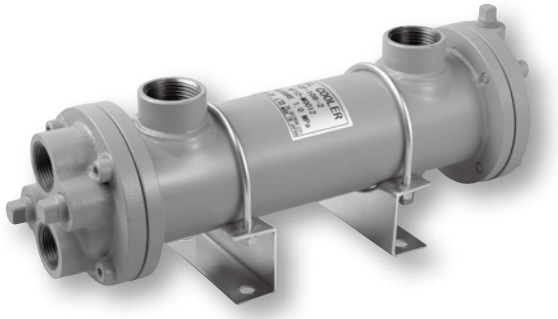
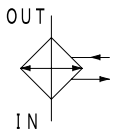
FCF model

Water-Cooled Shell and Tube type Compact Oil Cooler
Fixed Tube Sheet type
Heat exchange amount: ~ 119.8kW

Definitive Model of General-use Compact Oil Cooler





Water-cooled type cooler

Characteristics

- **ϕ9 Low Fin Tube enables high cooling performance and downsizing**
- **Wide size variation allows to appropriate model selection**
- **High flexibility of installation by selectable flow direction and adjustable U-bolt stand**
- **Fixed tube sheet type is the simplest structure and low price**

SPECIFICATION

	Shell side		Tube side
Max working pressure MPa	1.0		1.0
Max working temperature ℃	100*1		60
Pass structure	1 pass		2 passes
Fluid type	Standard	Mineral oil	Fresh water
	G	Water glycol fluid	
		Fatty ester fluid	

Shell size code		00 □	1 □□	2 □□	3 □□	4 □□
Cooling tube type		ϕ9 Low Fin Tube ☆				
Main material	Cooling tube	Phosphorous-deoxidized copper				
	Body	STKM, SS			STK, SS	SGP
	Channel	FC				
Coating	Outside coating	Aqua blue				
	Inside of channel	Tar-free epoxy coating				

☆ TAISEI original high performance cooling tube enables 20% size reduction compared with general ϕ12.7 low fin tube.

MODEL CODE

〈Model code example〉

G – FCF – 226 – 2

Code	Fluid type (Shell side)
Blank	Mineral oil
G	Water-glycol fluid
	Fatty ester fluid

Code	Heat transfer area	Shell size
003	0.15㎡	ϕ63.5
006	0.3㎡	
108	0.4㎡	ϕ76.3 (65A)
114	0.7㎡	
122	1.1㎡	
226	1.3㎡	ϕ114.3 (100A)
234	1.7㎡	
242	2.1㎡	
256	2.8㎡	
270	3.5㎡	

Code	Heat transfer area	Shell size
350	2.5㎡	ϕ139.8 (125A)
370	3.5㎡	
390	4.5㎡	
311	5.5㎡	
313	6.5㎡	
314	7.0㎡	
316	8.0㎡	
411	5.5㎡	ϕ165.2 (150A)
414	7.0㎡	
416	8.0㎡	
418	9.0㎡	
420	10.0㎡	

Code	Flow rate*2
0	Large
1	Medium
2	Small

＊1 Temperature difference between shell side fluid and tube side fluid should be within 80℃. If it is larger than 80℃, please select FCD model.
＊2 "Flow rate" is for optimization of flow velocity by adjusting the number of baffle plate depend on flow amount variation.

PERFORMANCE GRAPH

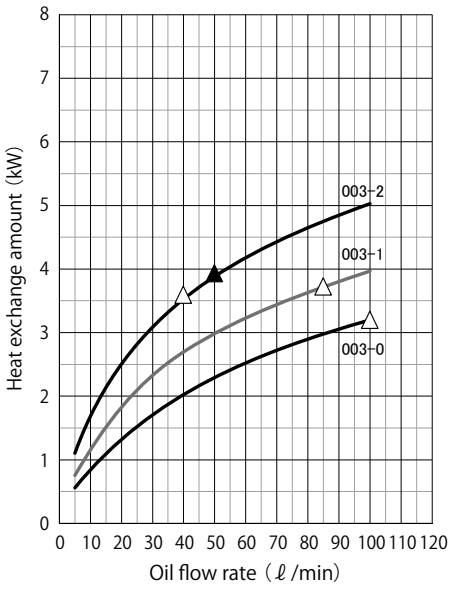
■ Condition

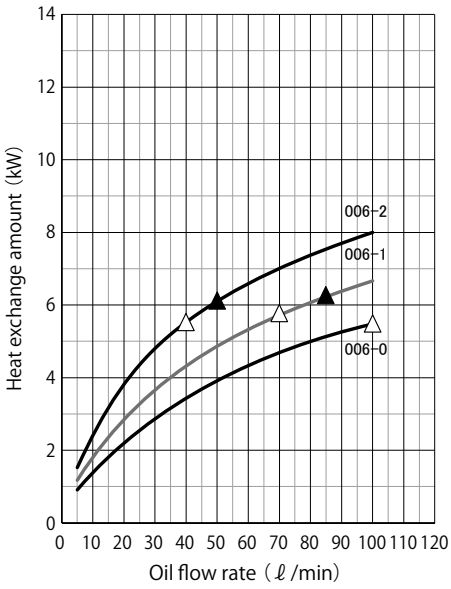
Fluid type		Corresponding to ISO VG46	Pressure drop	Shell side MPa	△ : ≦ 0.1 ▲ : 0.15
Inlet temperature	Shell side ℃	55			
	Tube side ℃	30		Tube side MPa	0.01 - 0.03
Flow rate at tube side		Max allowable flow rate	Scale coefficient at tube side	㎡℃/W	0

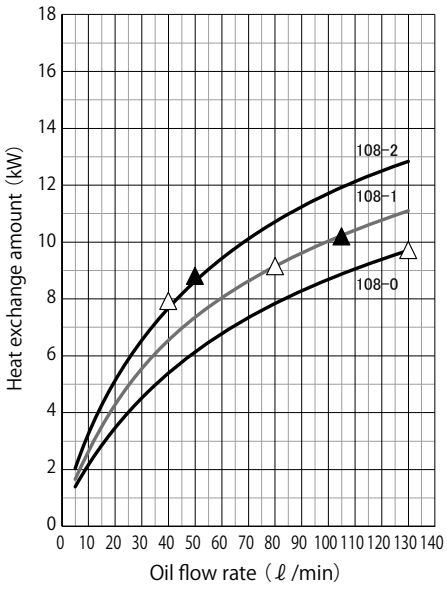
■ Allowable flow rate

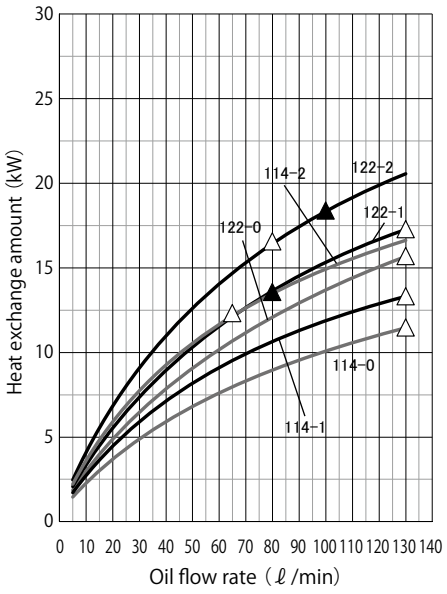
Model code	FCF-0□□	FCF-1□□	FCF-2□□	FCF-3□□	FCF-4□□
Shell side ℓ/min	～100	～130	15～240	50～300	50～400
Tube side ℓ/min	5～18	10～35	20～80	30～110	45～170

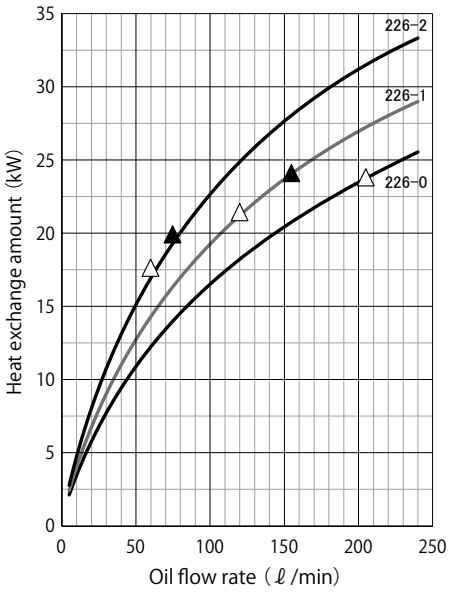
★ It is max value and It depends on each working condition.

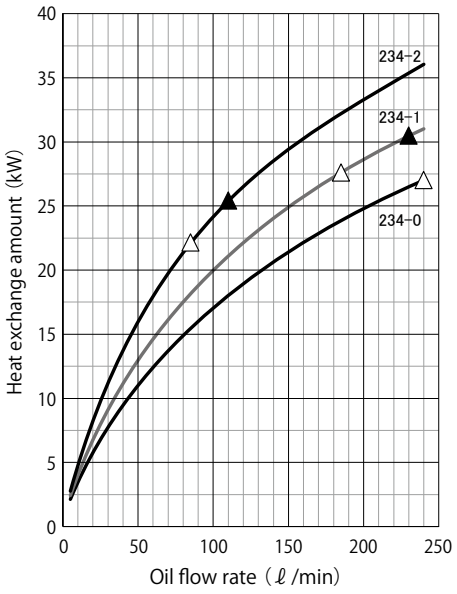


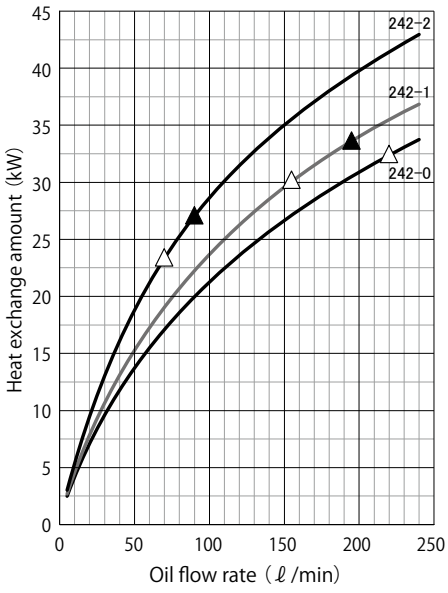


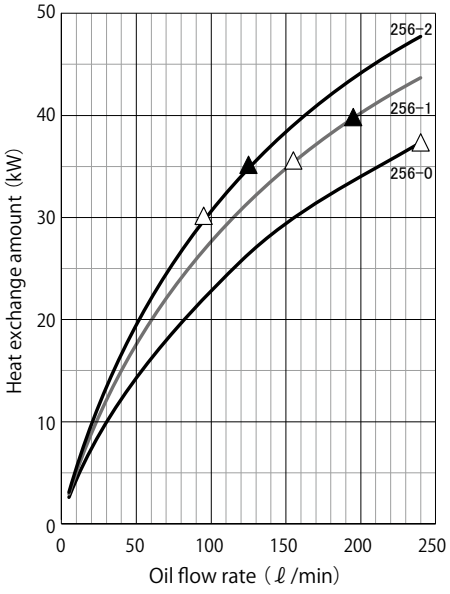


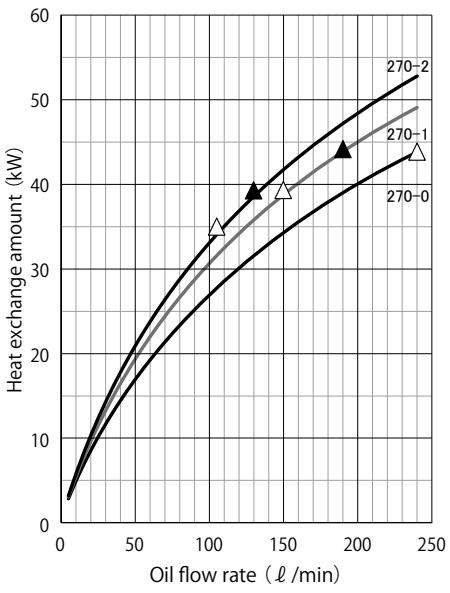












FCF

PERFORMANCE GRAPH

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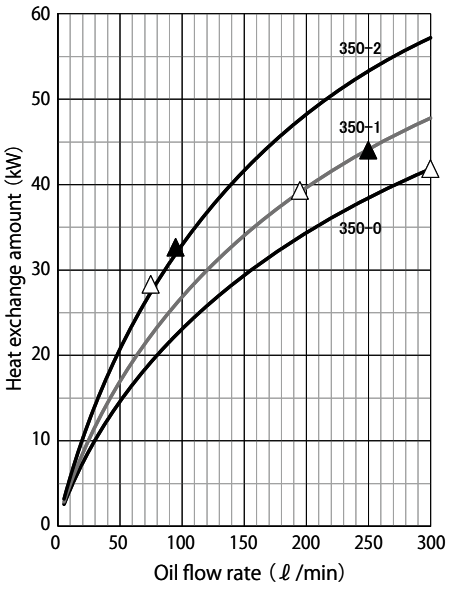
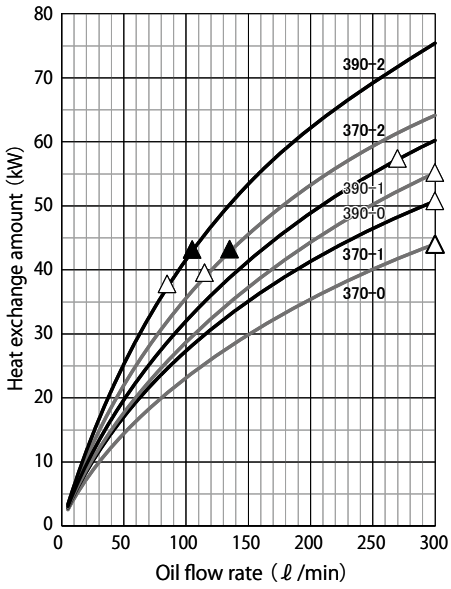
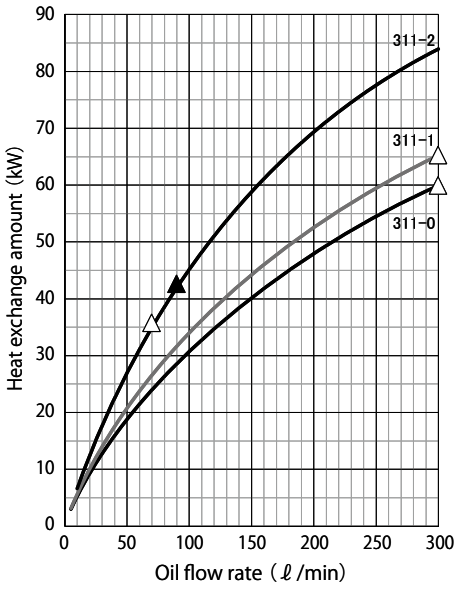
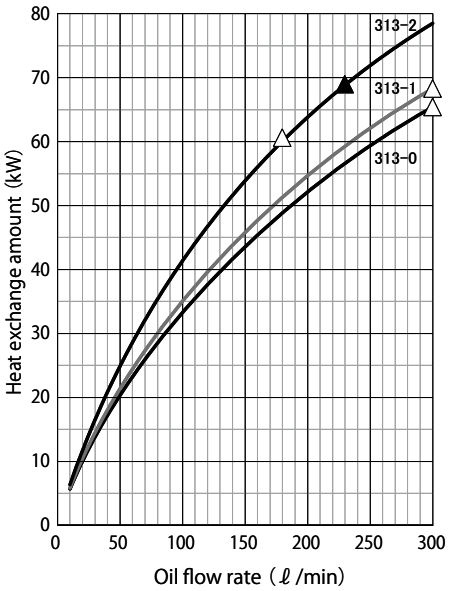
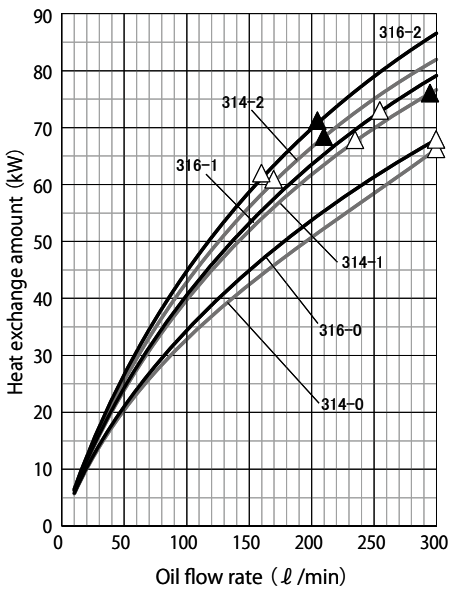
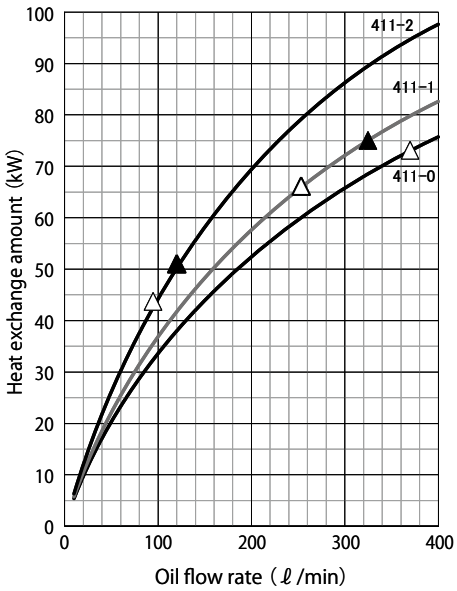


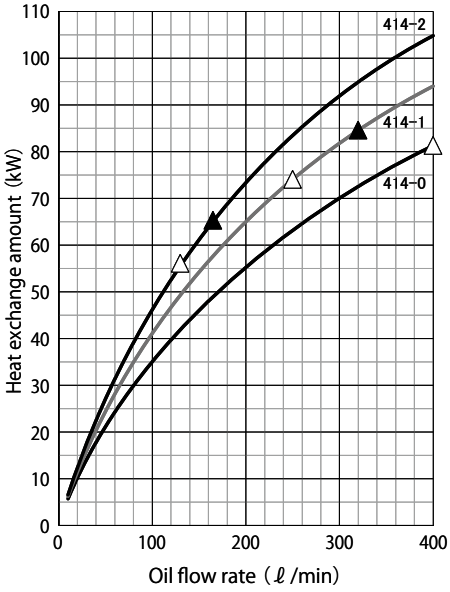


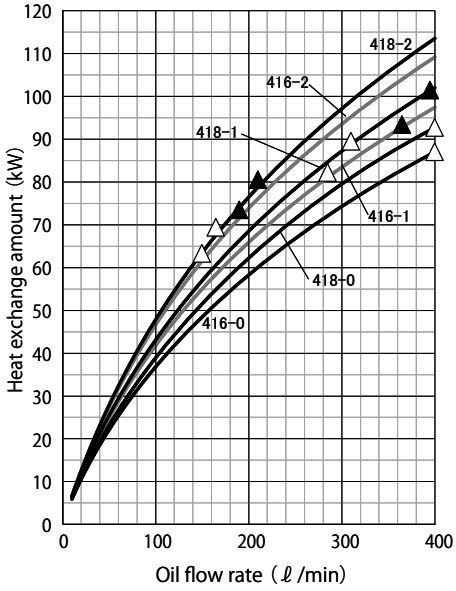


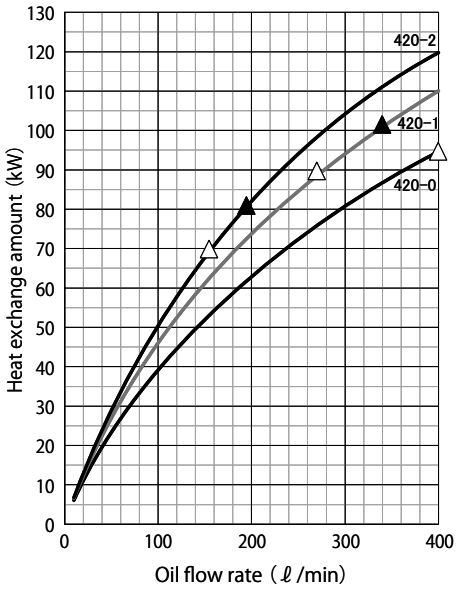






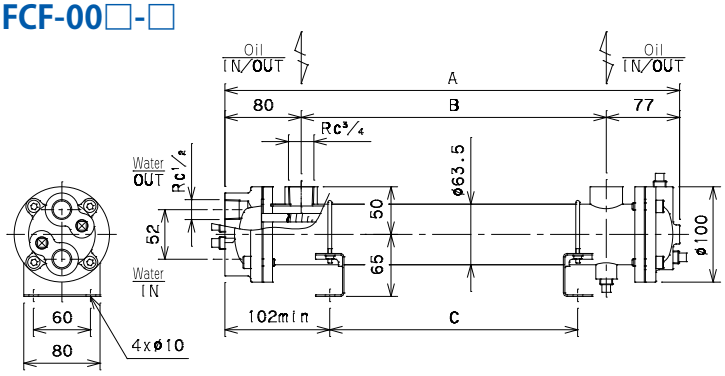






Unit : mm

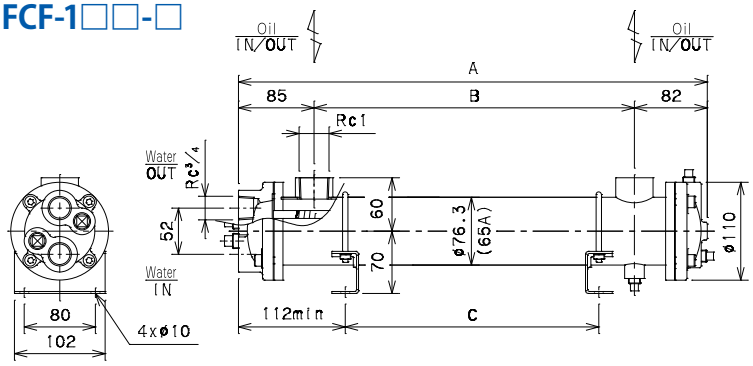
FCF-00□-□



Model code	Length			Weight (kg)
	A	B	C	
FCF-003-□	297	140	30～95	5.5
FCF-006-□	477	320	30～275	6.3

★Stand position is adjustable.

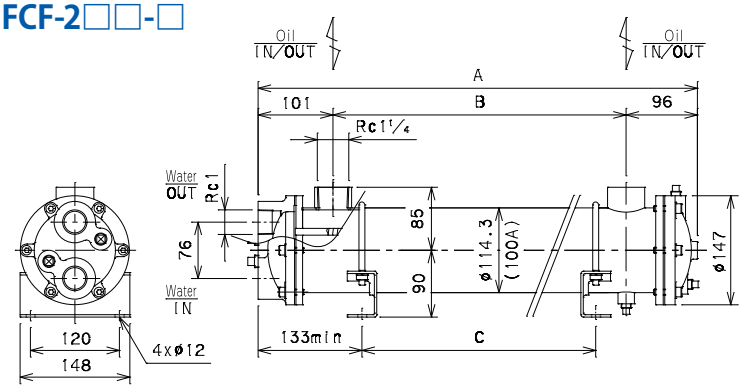
FCF-1□□-□



Model code	Length			Weight (kg)
	A	B	C	
FCF-108-□	347	180	30～125	6.5
FCF-114-□	527	360	30～305	8.5
FCF-122-□	757	590	30～535	11

★Stand position is adjustable.

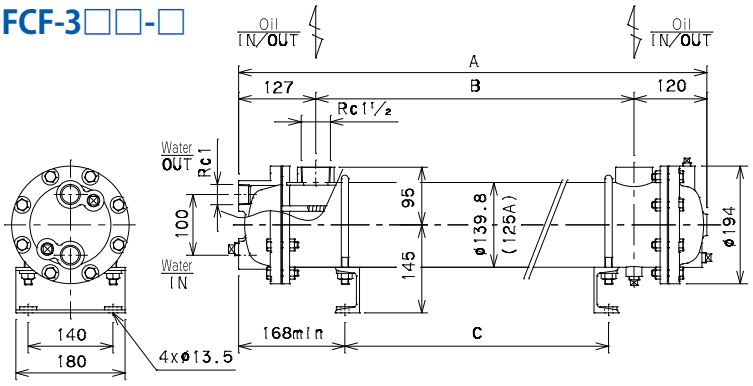
FCF-2□□-□



Model code	Length			Weight (kg)
	A	B	C	
FCF-226-□	437	240	40～175	14
FCF-234-□	547	350	40～285	16
FCF-242-□	627	430	40～365	17.5
FCF-256-□	777	580	40～515	22
FCF-270-□	947	750	40～685	25

★Stand position is adjustable.

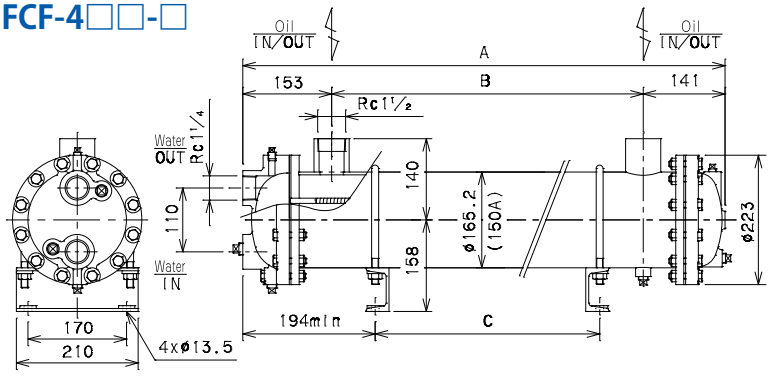
FCF-3□□-□



Model code	Length			Weight (kg)
	A	B	C	
FCF-350-□	587	340	50～255	34
FCF-370-□	817	570	50～485	42
FCF-390-□	987	740	50～655	47
FCF-311-□	1107	860	50～775	52
FCF-313-□	1287	1040	50～955	58
FCF-314-□	1407	1160	50～1075	63
FCF-316-□	1587	1340	50～1255	69

★Stand position is adjustable.

FCF-4□□-□

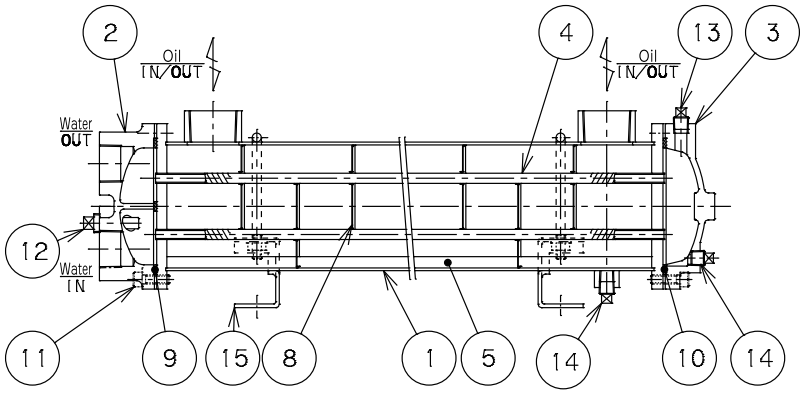


Model code	Length			Weight (kg)
	A	B	C	
FCF-411-□	834	540	50～455	60
FCF-414-□	1004	710	50～625	68
FCF-416-□	1124	830	50～745	74
FCF-418-□	1204	910	50～825	78
FCF-420-□	1304	1010	50～925	83

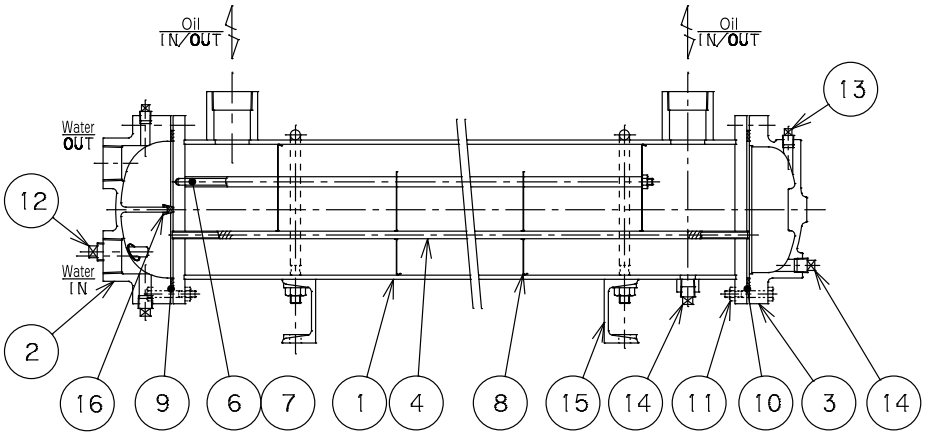
★Stand position is adjustable.

CROSS SECTION

FCF-00□～FCF-2□□



FCF-3□□, FCF-4□□



PARTS LIST

No.	Item	Qty
1	Body	1
2	Channel "A"	1
3	Channel "B"	1
4	Fin tube	n*
5	Set plate (Only for 00□～2□□)	n*
6	Distance pipe	n*
7	Rod	4
8	Baffle plate	n*
9	Packing	1
10	Packing	1
11	Bolt (00□～2□□)	n*
	Bolt・Nut (3□□、4□□)	
12	Zinc plug	2
13	Air vent plug	1
14	Drain plug	2
15	Stand	2
16	U-shaped packing (Only for 4□□)	1

n*：The number of part depends on model.

SEALING PARTS & ANTICORROSIVE PARTS LIST

No.	9	10	16	Sealing parts set		12
Item / Model code	Special packing non asbestos		U-shaped packing NBR		No.：9,10,16	Zinc plug
				Material	Code of sealing parts set (Item code)	Size (Item code)
FCF-00□	t2xφ74/φ60, W6 (with partition)	t2xφ74/φ60		—	SA-FCF-000 (SSC000001)	R 1/4 (7Z3010000)
FCF-1□□	t2xφ83/φ72, W6 (with partition)	t2xφ83/φ72		—	SA-FCF-100 (SSC000002)	R 3/8 (7Z3020000)
FCF-2□□	t2xφ120/φ109, W6 (with partition)	t2xφ120/φ109		—	SA-FCF-200 (SSC000003)	
FCF-3□□	t2xφ160/φ134, W6 (with partition)	t2xφ160/φ134		—	SA-FCF-300 (SSC000004)	R 1/2 (7Z3040000)
FCF-4□□	t3xφ188/φ162		12x12x162	NBR	SA-FCF-400 (SSC000005)	

MAINTENANCE TOOL LIST

Item	Size (mm)	Item code	Remarks
Tube brush	D6x1000	KZZ000001	For periodic cleaning of tube to prevent scale.
Tube plug	D5.5x7.5x25	BZZ000021	For closing a tube when leakage occurs due to tube corrosion. 2 plugs are required for a tube.