

SPICO CORPORATION

스피코주식회사

Since 1988



HEAT EXCHANGER PRODUCTS CATALOGUE

 **SPICO Corporation**
SPICO 스피코주식회사

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FOR CUSTOMER

When catalog's products are not contented to customers demand, if your necessary condition send us in specification writed below, we will selection you proper Heat-Exchanger.

SPECIFICATION FOR HEAT EXCHANGER

Customer : _____ Date : _____
 Address : _____
 TEL. : _____ FAX. : _____

| | High temp. ()side | Low temp. ()side |
|----------------------|--|--|
| Fluid name | | |
| Heat duty | Q = _____ kal/hr | |
| Flow rate | W _s = _____ l/min, m ³ /hr | W _t = _____ l/min, m ³ /hr |
| Inlet temp. | T ₁ = _____ °C | t ₁ = _____ °C |
| Outlet temp. | T ₂ = _____ °C | t ₂ = _____ °C |
| Max. working temp. | T _s = _____ °C | T _t = _____ °C |
| Max. working press | P _s = _____ kg/cm ² | P _t = _____ kg/cm ² |
| Allowable press drop | ΔP _s = Max _____ kg/cm ² | ΔP _t = Max _____ kg/cm ² |
| Specific weight | ρ _s = _____ kg/m ³ | ρ _t = _____ kg/m ³ |
| Specific heat | C _s = _____ kal/kg°C | C _t = _____ kal/kg°C |
| Thermal conductivity | K _s = _____ kal/mhr°C | K _t = _____ kal/mhr°C |
| Viscosity | μ _s = _____ | μ _t = _____ |

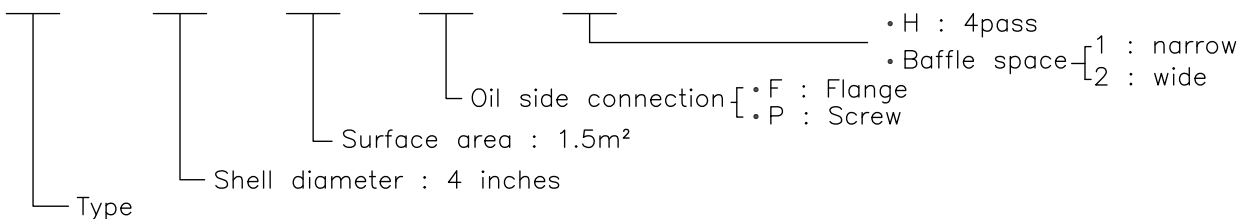
NOTE : Please fill in the blank places.

Foot-pound unit will as where the metric unit is not possible.
 If the values of physical properties for the fluid of high temperature side is available, please indicate.

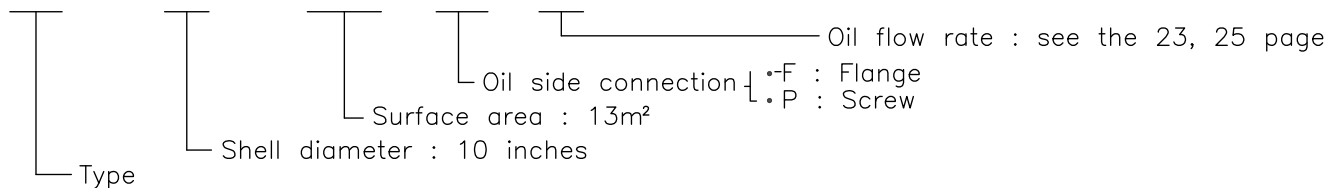
SYMBOLS AND CONSTRUCTION

MODEL IDENTIFICATION FOR OIL COOLER

HS - 4 15 - F - H1

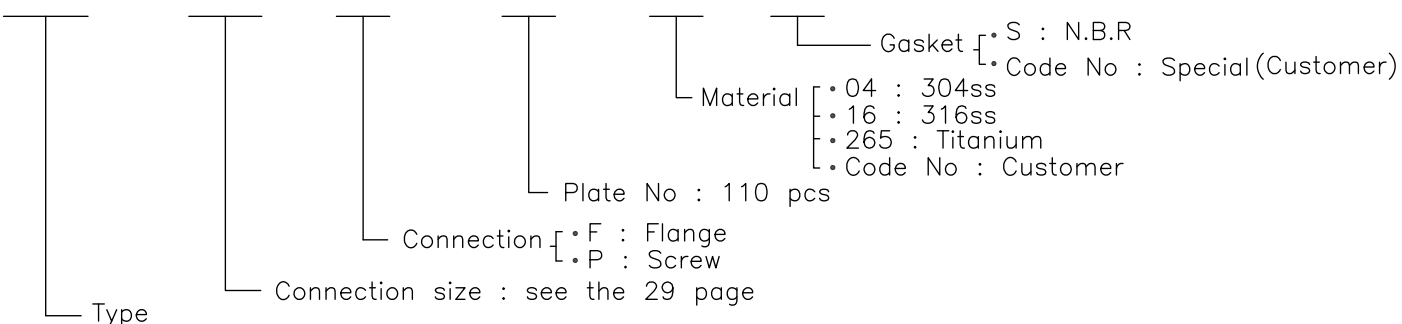


LC - 10 130 - F 2



MODEL IDENTIFICATION FOR PLATE HEAT EXCHANGER

SPH - 032 - P - 110 - 04 - S



| Water port | Fresh water | Sea water |
|-------------------|--|-----------------------------------|
| Screw connection | HS (Fin tube) LC (Fin tube) HC (Bare tube) | - |
| Flange connection | LCF (Fin tube) HCF (Bare tube) HCV (Bare tube)–Vertical type HCL (Bare tube) LCV (Fin) | MLF (Fin tube) MCF (Bare tube) |

NOTE : Tube pass – 1pass, 4pass and more are available.

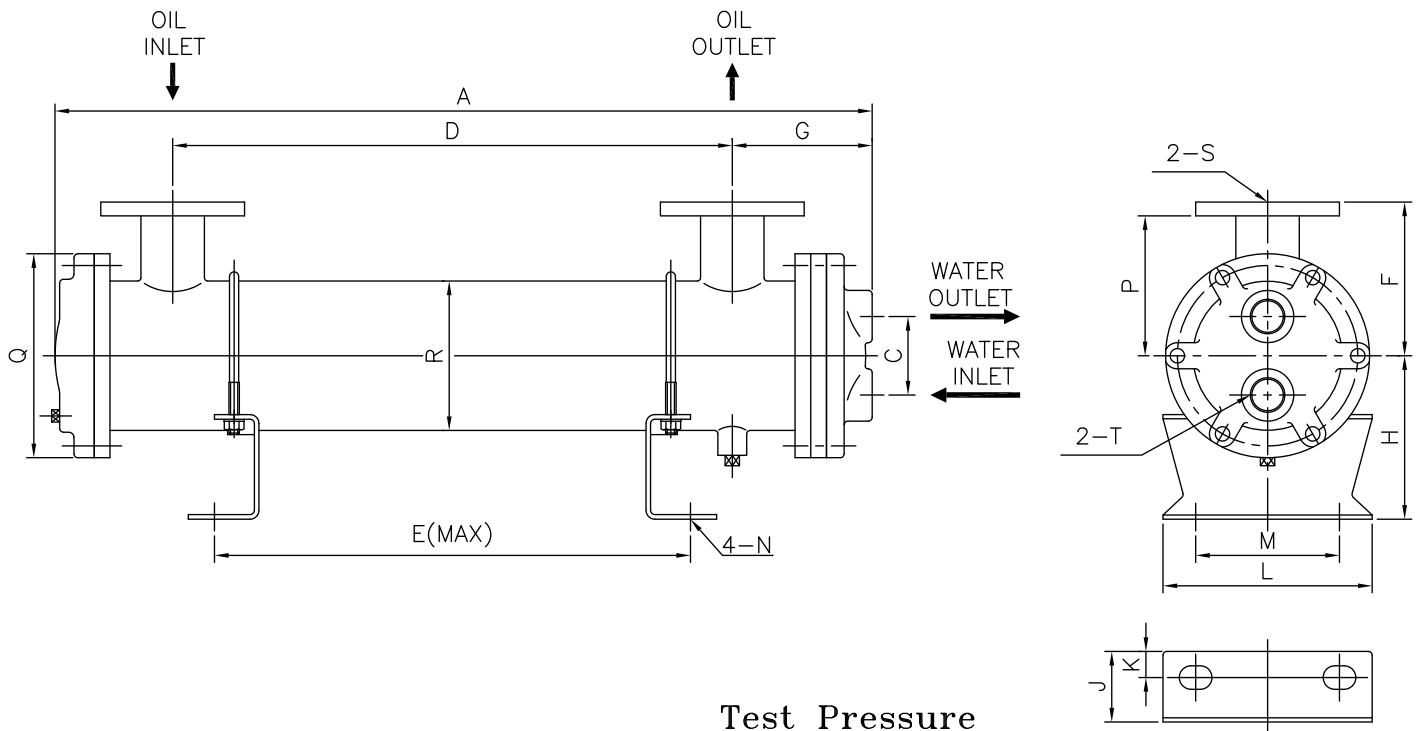
(Above model indicate 2pass, HS type is 4pass)

Fixed tube sheet type and floating head type are also available.

U–Tube type is manufactured complied with customer’s specification.

It can manufactured suitable products complied with customer’s specification applied by varrious kinds of materials and electric heat transfer tube.

HS TYPE (Fresh Water)



Test Pressure

Shell Side 15kg/cm²

Tube Side 10kg/cm²

DIMENSION

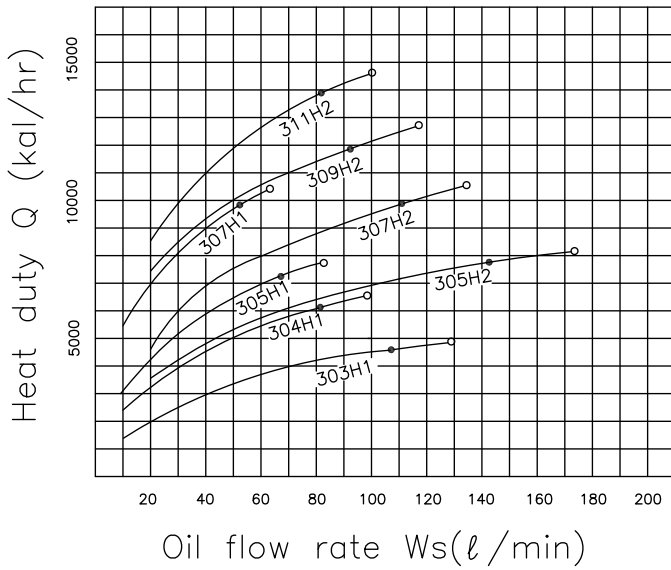
(unit : mm)

| TYPE | A | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | WEIGHT (kg) | | | | | | | | | | | | | |
|--------|------|-----|------|-----|-----|-----|-----|----|----|-----|-----|-------|-----|-----|-------|------|------|-------------|-----|-----|------|-------|-----|-----|------|--------|------|-----|-----|-----|-----|
| HS-302 | 279 | 45 | 104 | 69 | - | 96 | 87 | 38 | 15 | 125 | 75 | 11x24 | 65 | 126 | 89.1 | 3/4" | 3/4" | 4.5 | | | | | | | | | | | | | |
| 3025 | 303 | | 128 | 93 | | | | | | | | | | | | | | 110 | 75 | 126 | 89.1 | 3/4" | 5 | | | | | | | | |
| 303 | 327 | | 152 | 107 | | | | | | | | | | | | | | | | | | | 5.5 | | | | | | | | |
| 304 | 399 | | 224 | 179 | 110 | | | | | | | | 96 | | | 87 | | 38 | 15 | 125 | 75 | 11x24 | 75 | 126 | 89.1 | 1 1/4" | 3/4" | 6 | | | |
| 305 | 471 | | 296 | 251 | | | | | | | | | | | | | | | | | | | | | | | | 6.5 | | | |
| 307 | 615 | | 440 | 395 | | | | | | | | | | | | | | | | | | | | | | | | 7 | | | |
| 309 | 759 | | 584 | 539 | | | | | | | | | | | | | | | | | | | | | | | | 8 | | | |
| 311 | 903 | | 728 | 683 | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | |
| HS-408 | 481 | | 60 | 284 | | | | | | | | | | | | | | | | | | | | | | | | 240 | 125 | 107 | 125 |
| 411 | 625 | 428 | | 384 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 415 | 769 | 572 | | 528 | 140 | 129 | 160 | 54 | 20 | 180 | 120 | 18x25 | 112 | 186 | 139.8 | 2" | 1" | 18 | | | | | | | | | | | | | |
| 418 | 913 | 716 | | 672 | | | | | | | | | | | | | | 21 | | | | | | | | | | | | | |
| 421 | 1057 | 860 | | 816 | | | | | | | | | | | | | | 24 | | | | | | | | | | | | | |
| HS-518 | 642 | 70 | | 406 | | | | | | | | | | | | | | 342 | 140 | 129 | 160 | 54 | 20 | 180 | 120 | 18x25 | 112 | 186 | | | |
| 526 | 858 | | 622 | 558 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 534 | 1074 | | 838 | 774 | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 542 | 1290 | | 1054 | 990 | 42 | | | | | | | | | | | | | | | | | | | | | | | | | | |

NOTE : If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

Performance Curve

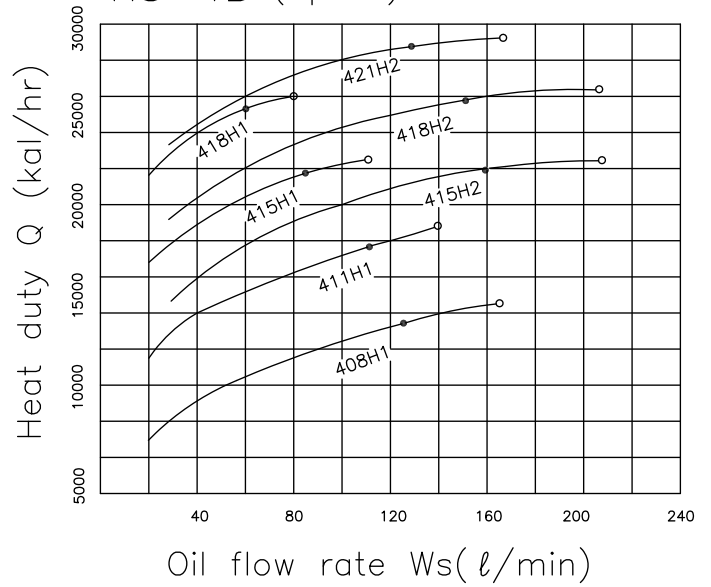
HS-3B (2pass)



Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50^\circ\text{C}$
- Water inlet temp. $t_1 = 30^\circ\text{C}$
- Flow rate(cooling water) $W_t = 20\text{ l/min}$

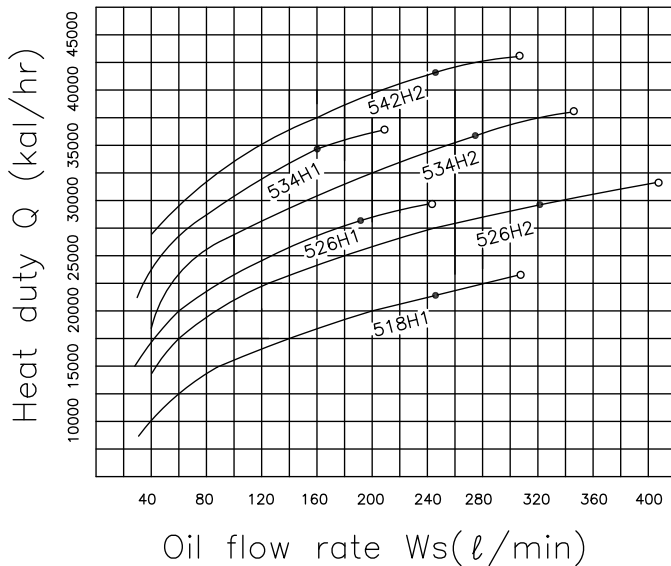
HS-4B (2pass)



Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50^\circ\text{C}$
- Water inlet temp. $t_1 = 30^\circ\text{C}$
- Flow rate(cooling water) $W_t = 30\text{ l/min}$

HS-5B (2pass)



Condition

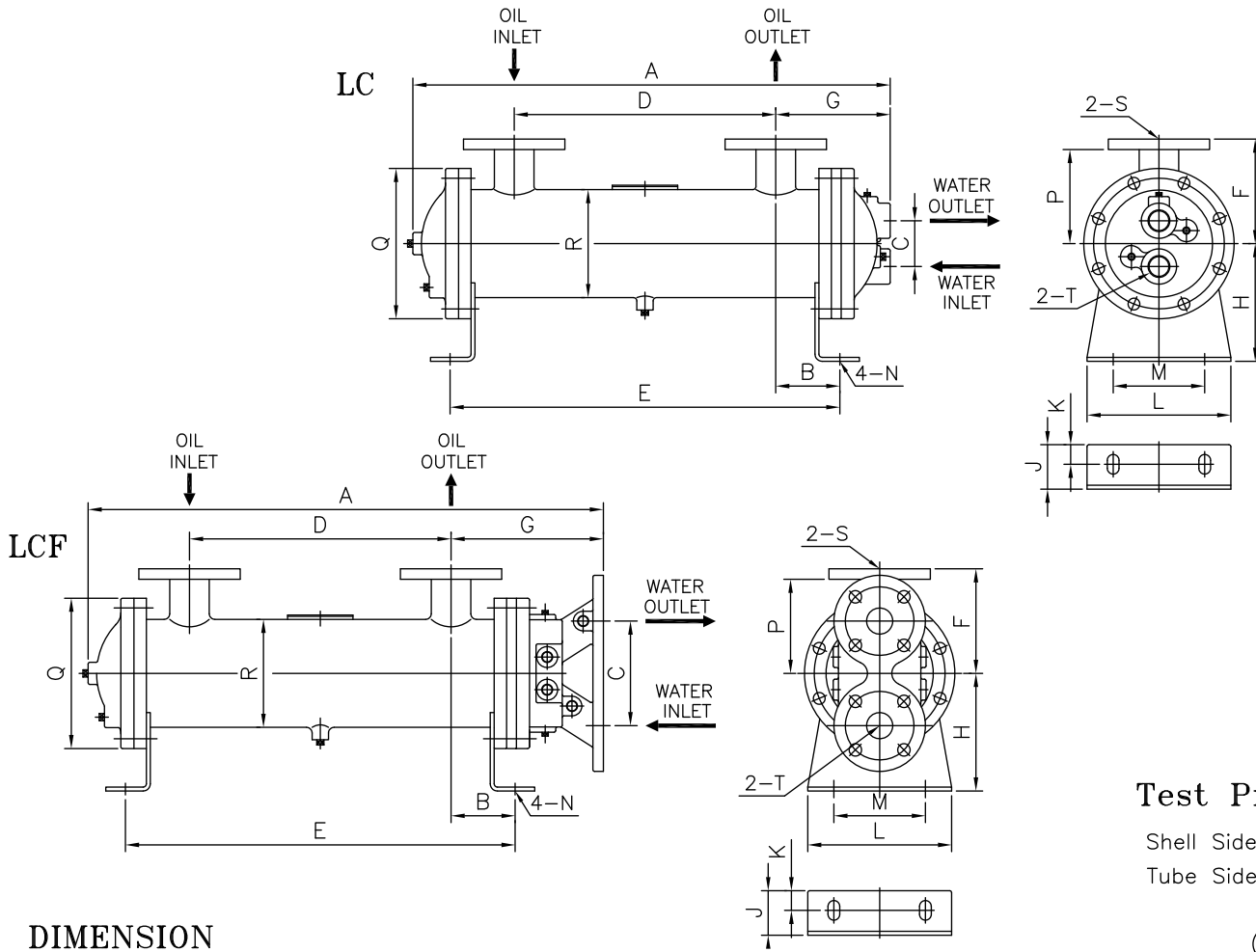
- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50^\circ\text{C}$
- Water inlet temp. $t_1 = 30^\circ\text{C}$
- Flow rate(cooling water) $W_t = 50\text{ l/min}$

* Pressure drop ●: 1.0kg/cm^2
○: 1.5kg/cm^2

* Heat duty : $3,000 \sim 43,000\text{kal/hr}$

* Oil flow rate : $20 \sim 400\text{ l/min}$

LC & LCF TYPE (Fresh Water)



Test Pressure

Shell Side 15kg/cm²
 Tube Side 10kg/cm²

DIMENSION

(unit : mm)

| TYPE | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | WEIGHT (kg) |
|----------------|------------|------|--------------|-----------|------|-----|--------------|-----|----|----|-----|-----|-------|-----|-----|-------|-----------------------------|-------------------------|-------------|
| LC(LCF)- 625 | 730(788) | 98 | 70 (160) | 400 | 596 | 160 | 175 (233) | 180 | 68 | 30 | 220 | 140 | 18x30 | 135 | 230 | 165.2 | PT2 or KS 10K 2B | PT1 (KS 10K 1½B) | 58 (70) |
| 630 | 860(918) | | | 530 | 726 | | | | | | | | | | | | | | 63 (75) |
| 640 | 1000(1058) | | | 670 | 866 | | | | | | | | | | | | | | 69 (81) |
| 645 | 1120(1178) | | | 790 | 986 | | | | | | | | | | | | | | 74 (86) |
| 650 | 1240(1298) | | | 910 | 1106 | | | | | | | | | | | | | | 79 (91) |
| 660 | 1350(1408) | | | 1020 | 1216 | | | | | | | | | | | | | | 83 (95) |
| 665 | 1440(1498) | | | 1110 | 1306 | | | | | | | | | | | | | | 87 (99) |
| LC(LCF)- 860 | 880(950) | 95 | 100 (200) | 520 | 710 | 180 | 190 (260) | 200 | 85 | 43 | 260 | 160 | 22x35 | 175 | 280 | 216.3 | PT2½ or KS 10K 2½B | PT1¼ (KS 10K 2B) | 108 (123) |
| 870 | 1020(1090) | | | 660 | 850 | | | | | | | | | | | | | | 118 (133) |
| 885 | 1140(1210) | | | 780 | 970 | | | | | | | | | | | | | | 126 (141) |
| 8100 | 1260(1330) | | | 900 | 1090 | | | | | | | | | | | | | | 135 (150) |
| 8110 | 1370(1440) | | | 1010 | 1200 | | | | | | | | | | | | | | 143 (158) |
| 8120 | 1460(1530) | | | 1100 | 1290 | | | | | | | | | | | | | | 149 (164) |
| 8135 | 1610(1680) | | | 1250 | 1440 | | | | | | | | | | | | | | 160 (175) |
| 8145 | 1680(1750) | | | 1320 | 1510 | | | | | | | | | | | | | | 165 (180) |
| 8160 | 1850(1920) | 1490 | 1680 | 177 (192) | | | | | | | | | | | | | | | |
| LC(LCF)- 10110 | 1037(1117) | 105 | 120 (220) | 640 | 850 | 220 | 212 (292) | 250 | 85 | 43 | 320 | 200 | 22x35 | - | 340 | 267.4 | KS 10K 3B | PT1½ (KS 10K 2½B) | 170 (189) |
| 10130 | 1157(1237) | | | 760 | 970 | | | | | | | | | | | | | | 182 (201) |
| 10145 | 1277(1357) | | | 880 | 1090 | | | | | | | | | | | | | | 194 (213) |
| 10165 | 1387(1467) | | | 990 | 1200 | | | | | | | | | | | | | | 205 (224) |
| 10180 | 1477(1557) | | | 1080 | 1290 | | | | | | | | | | | | | | 214 (233) |
| 10200 | 1627(1707) | | | 1230 | 1440 | | | | | | | | | | | | | | 230 (249) |
| 10210 | 1697(1777) | | | 1300 | 1510 | | | | | | | | | | | | | | 237 (256) |
| 10240 | 1867(1947) | | | 1470 | 1680 | | | | | | | | | | | | | | 254 (273) |
| 10260 | 1987(2067) | | | 1590 | 1800 | | | | | | | | | | | | | | 266 (285) |

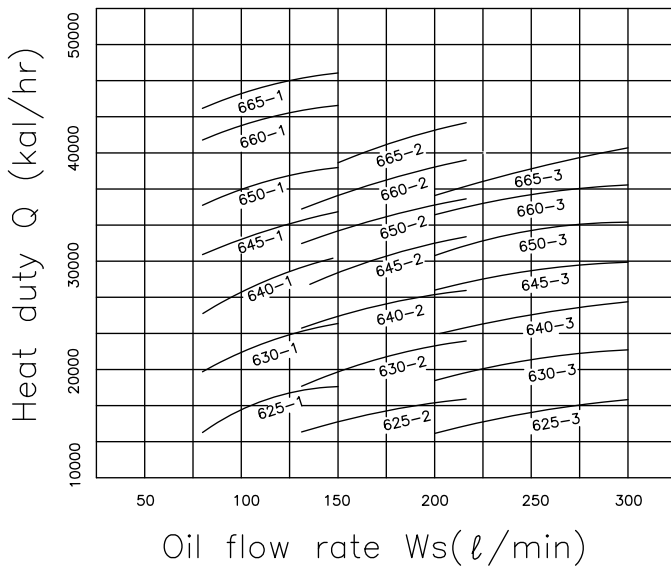
NOTE : () indicate dimension and weight LCF model.

Larger size is available.

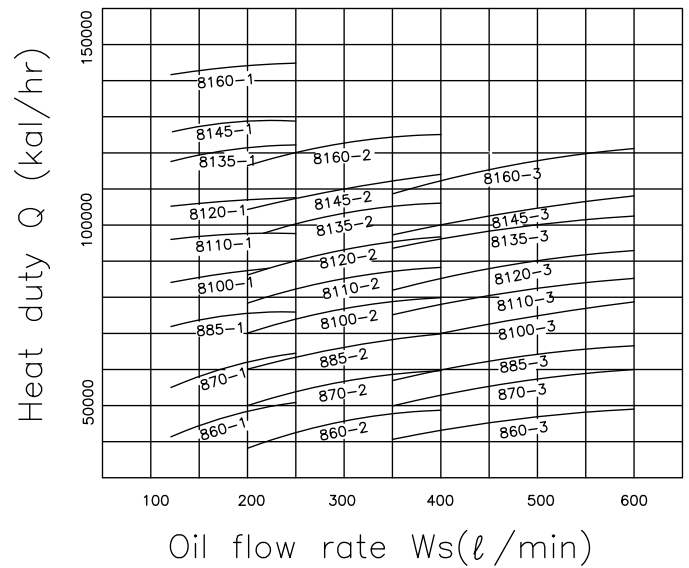
If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

Performance Curve

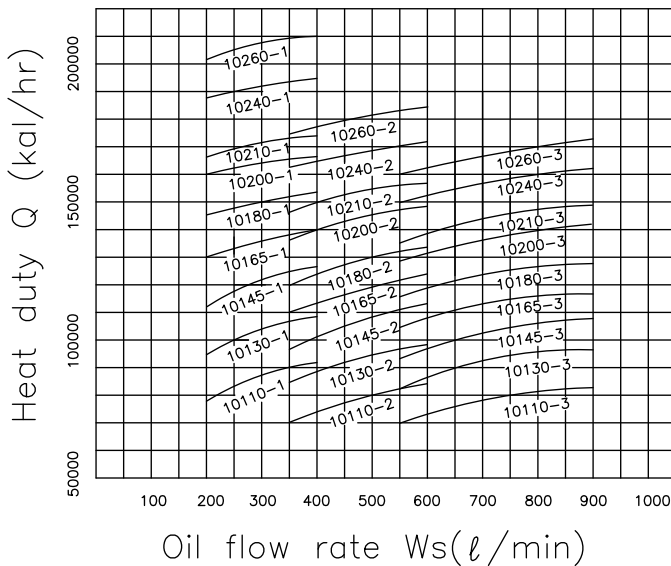
LC-6B



LC-8B



LC-10B



- * Heat duty : 15,000 ~ 210,000kal/hr
- * Oil flow rate : 80 ~ 1,000 l/min

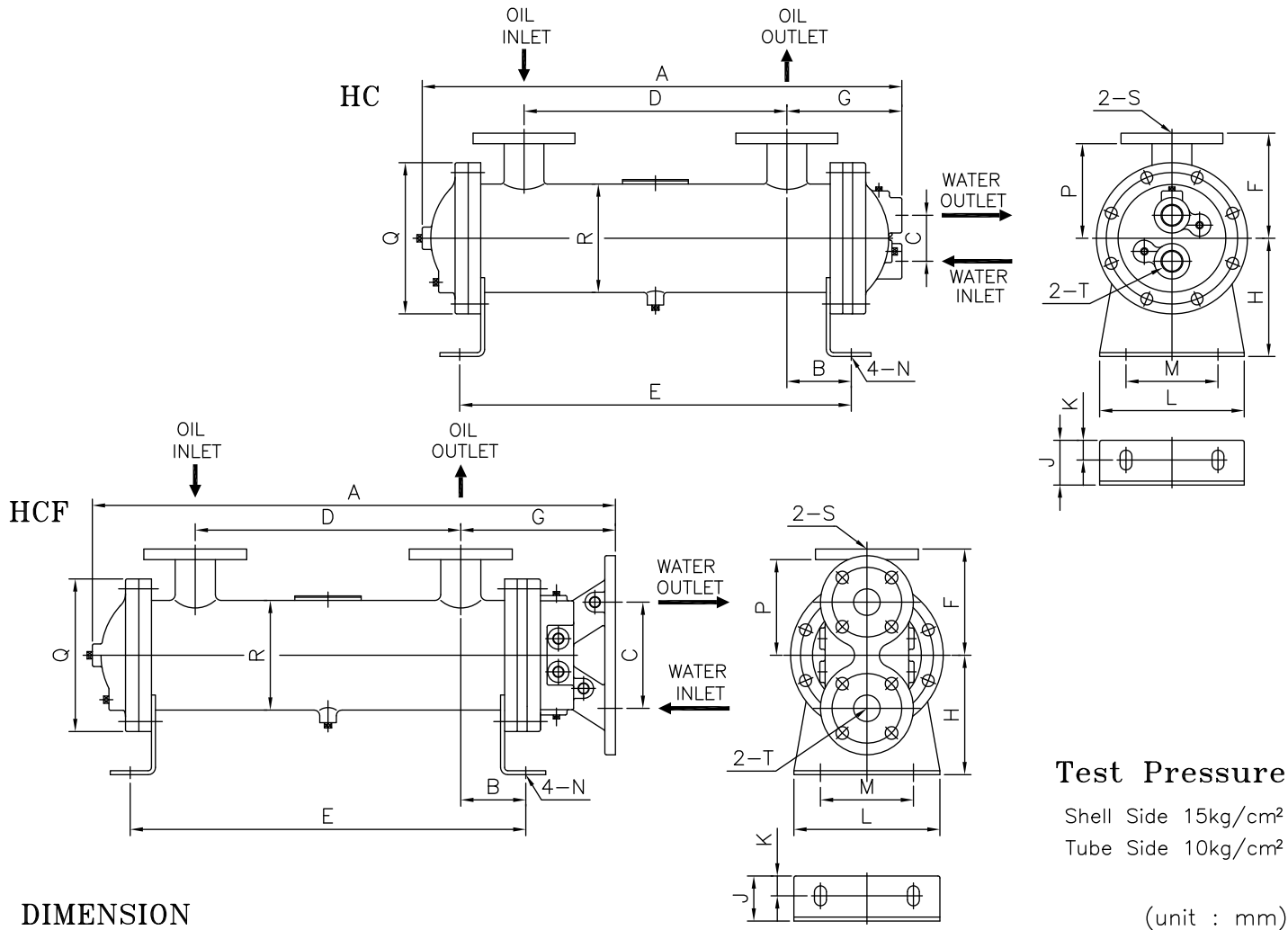
Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50^\circ\text{C}$
- Water inlet temp. $t_1 = 28^\circ\text{C}$
- Flow rate(cooling water) $W_t = 60 \text{ l/min}$

Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50^\circ\text{C}$
- Water inlet temp. $t_1 = 28^\circ\text{C}$
- Flow rate(cooling water) $W_t = 150 \text{ l/min}$

HC & HCF TYPE (Fresh Water)



DIMENSION

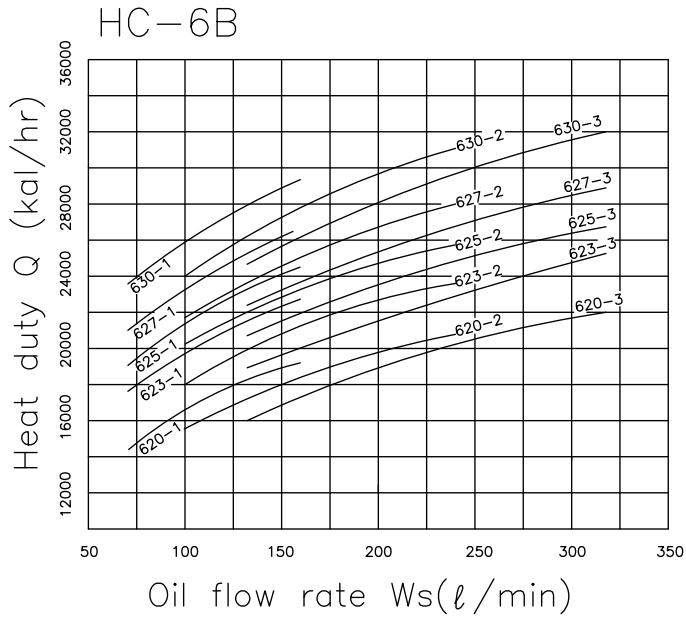
| TYPE | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | WEIGHT (kg) |
|---------------|------------|------|--------------|------|------|-----|------------------|-----|----|----|-----|-----|-------|-----|-----|-------|-----------------------------|-------------------------|-------------|
| HC(HCF)- 620 | 920(978) | 80.5 | 70 (160) | 620 | 786 | 150 | 157.5 (215.5) | 180 | 68 | 30 | 220 | 140 | 18x30 | 140 | 230 | 165.2 | PT1½ or KS 10K 1½B | PT1 (KS 10K 1½B) | 59 (71) |
| 623 | 1030(1088) | | | 735 | 896 | | | | | | | | | | | | | | 63 (75) |
| 625 | 1100(1158) | | | 805 | 966 | | | | | | | | | | | | | | 65 (77) |
| 627 | 1175(1233) | | | 880 | 1041 | | | | | | | | | | | | | | 68 (80) |
| 630 | 1280(1338) | | | 985 | 1146 | | | | | | | | | | | | | | 72 (84) |
| HC(HCF)- 840 | 1060(1130) | 85 | 100 (200) | 720 | 890 | 180 | 180 (250) | 200 | 85 | 43 | 260 | 160 | 22x35 | 160 | 280 | 216.3 | PT2 or KS 10K 2B | PT1¼ (KS 10K 2B) | 120 (135) |
| 850 | 1260(1330) | | | 920 | 1090 | | | | | | | | | | | | | | 130 (145) |
| 860 | 1460(1530) | | | 1120 | 1290 | | | | | | | | | | | | | | 140 (155) |
| 870 | 1680(1750) | | | 1340 | 1510 | | | | | | | | | | | | | | 155 (170) |
| 880 | 1890(1960) | | | 1550 | 1720 | | | | | | | | | | | | | | 170 (185) |
| HC(HCF)- 1080 | 1157(1237) | 95 | 120 (220) | 780 | 970 | 220 | 202 (282) | 250 | 85 | 43 | 320 | 200 | 22x35 | 200 | 340 | 267.4 | PT2½ or KS 10K 2½B | PT1½ (KS 10K 2½B) | 180 (199) |
| 1090 | 1277(1357) | | | 900 | 1090 | | | | | | | | | | | | | | 195 (214) |
| 10100 | 1387(1467) | | | 1010 | 1200 | | | | | | | | | | | | | | 205 (224) |
| 10120 | 1627(1707) | | | 1250 | 1440 | | | | | | | | | | | | | | 230 (249) |
| 10140 | 1867(1947) | | | 1490 | 1680 | | | | | | | | | | | | | | 255 (274) |
| 10160 | 2107(2187) | | | 1730 | 1920 | | | | | | | | | | | | | | 280 (299) |

NOTE : () indicate dimension and weight HCF model.

Larger size is available.

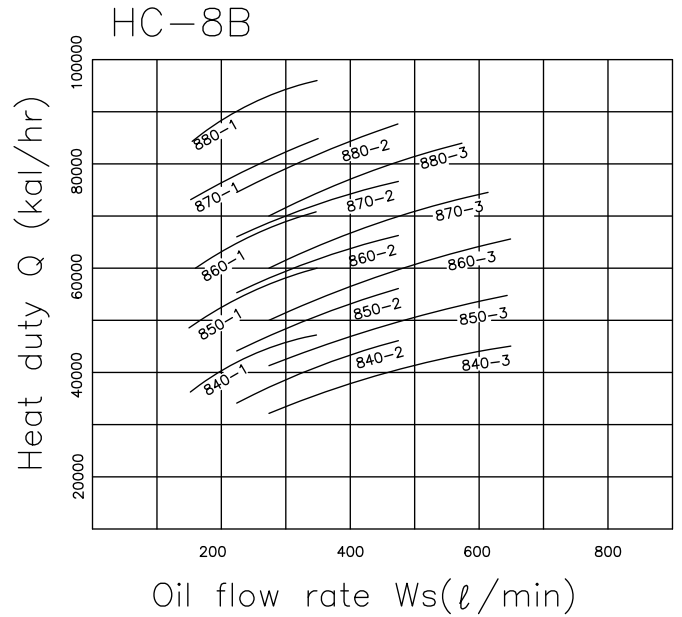
If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

Performance Curve



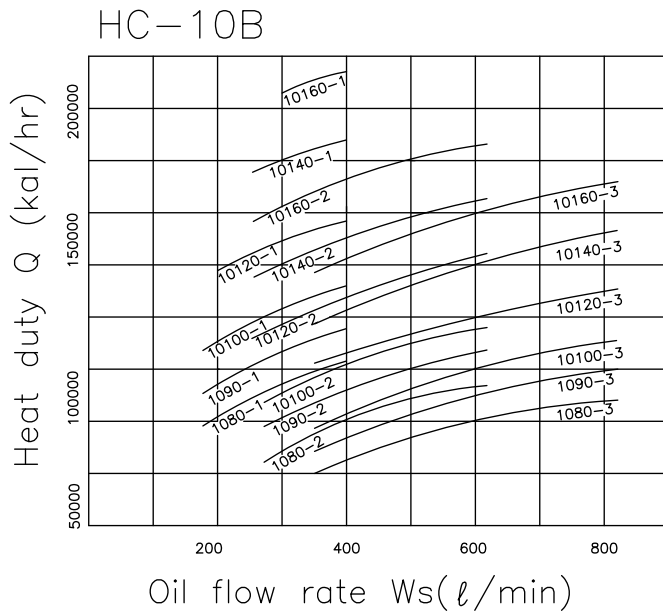
Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50\text{ }^\circ\text{C}$
- Water inlet temp. $t_1 = 28\text{ }^\circ\text{C}$
- Flow rate(cooling water) $W_t = 80\text{ l/min}$



Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50\text{ }^\circ\text{C}$
- Water inlet temp. $t_1 = 28\text{ }^\circ\text{C}$
- Flow rate(cooling water) $W_t = 150\text{ l/min}$



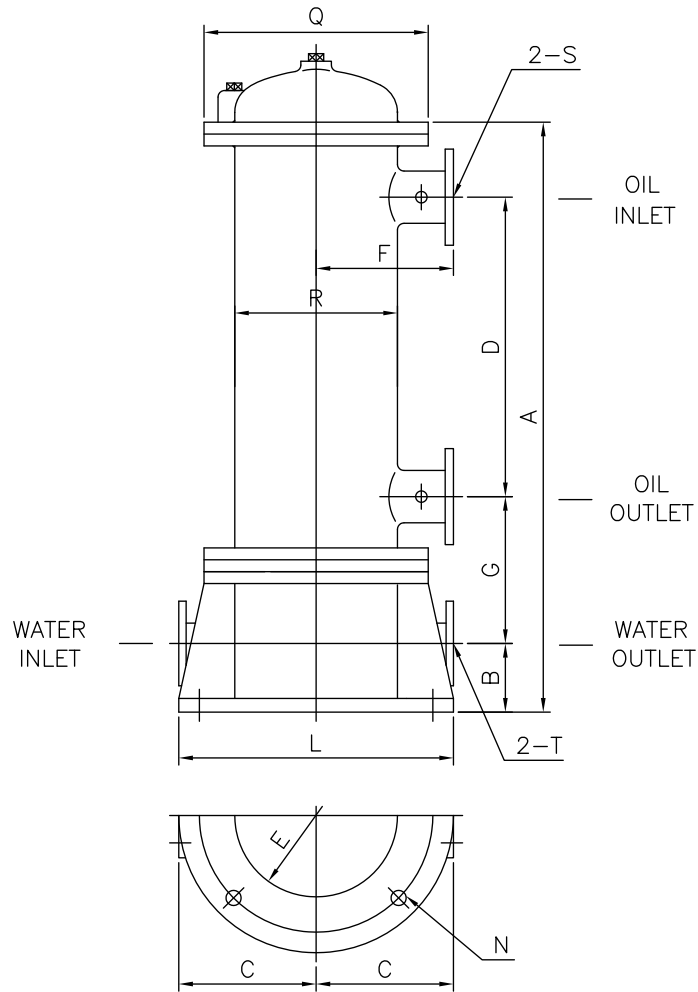
Condition

- Fluid : ISO VG-32 equivalent
- Oil outlet temp. $T_2 = 50\text{ }^\circ\text{C}$
- Water inlet temp. $t_1 = 28\text{ }^\circ\text{C}$
- Flow rate(cooling water) $W_t = 250\text{ l/min}$

* Heat duty : 10,000 ~ 200,000kal/hr

* Oil flow rate : 70 ~ 1,000 l/min

HCV TYPE (Fresh Water)



Test Pressure

Shell Side 15kg/cm²
 Tube Side 10kg/cm²

DIMENSION

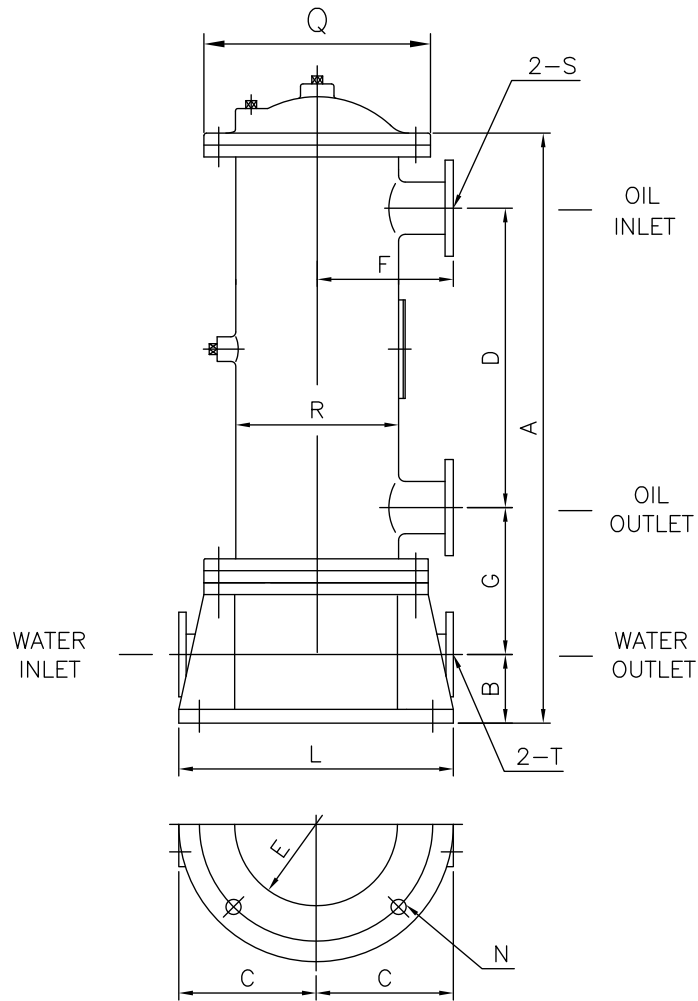
(unit : mm)

| TYPE | A | B | C | D | E | F | G | N | L | Q | R | S | T | WEIGHT (kg) |
|------------|------|-----|-----|------|-----|-----|-----|-----|------|-----|-------|-----|-----|-------------|
| HCV - 620 | 1043 | 90 | 150 | 620 | 240 | 150 | 192 | 300 | 3-24 | 230 | 165.2 | 1½" | 1" | 72 |
| 623 | 1153 | | | 735 | | | 76 | | | | | | | |
| 625 | 1223 | | | 805 | | | 78 | | | | | | | |
| 627 | 1298 | | | 880 | | | 81 | | | | | | | |
| 630 | 1403 | | | 985 | | | 85 | | | | | | | |
| HCV - 840 | 1215 | 110 | 180 | 720 | 290 | 180 | 225 | 360 | 4-24 | 280 | 216.3 | 2" | 1¼" | 140 |
| 850 | 1415 | | | 920 | | | | | | | | | | 150 |
| 860 | 1615 | | | 1120 | | | | | | | | | | 160 |
| 870 | 1835 | | | 1340 | | | | | | | | | | 175 |
| 880 | 2045 | | | 1550 | | | | | | | | | | 190 |
| HCV - 1080 | 1320 | 130 | 220 | 780 | 350 | 220 | 235 | 440 | 4-24 | 340 | 267.4 | 2½" | 2" | 210 |
| 1090 | 1440 | | | 900 | | | | | | | | | | 225 |
| 10100 | 1550 | | | 1010 | | | | | | | | | | 235 |
| 10120 | 1790 | | | 1250 | | | | | | | | | | 260 |
| 10140 | 2030 | | | 1490 | | | | | | | | | | 280 |
| 10160 | 2270 | | | 1730 | | | | | | | | | | 310 |

NOTE : Larger size is available.

If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

LCV TYPE (Fresh Water)



Test Pressure

Shell Side 15kg/cm²
 Tube Side 10kg/cm²

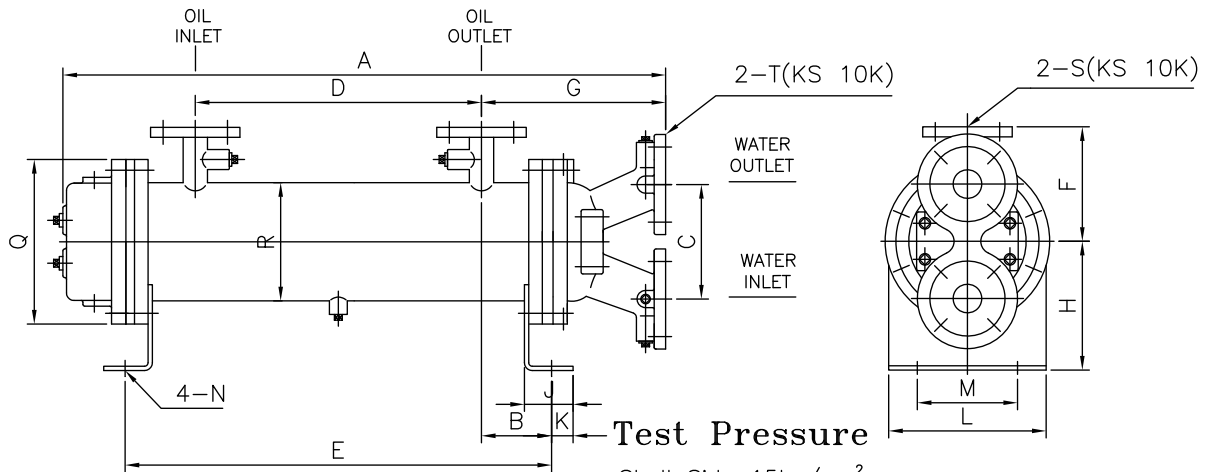
DIMENSION

(unit : mm)

| TYPE | A | B | C | D | E | F | G | N | L | Q | R | S | T | WEIGHT (kg) |
|------------|------|-----|-----|------|-----|-----|-----|-----|------|-----|-------|-----|-----|-------------|
| LCV - 620 | 1043 | 90 | 150 | 620 | 240 | 150 | 192 | 300 | 3-24 | 230 | 165.2 | 1½" | 1" | 72 |
| 623 | 1153 | | | 735 | | | 76 | | | | | | | |
| 625 | 1223 | | | 805 | | | 78 | | | | | | | |
| 627 | 1298 | | | 880 | | | 81 | | | | | | | |
| 630 | 1403 | | | 985 | | | 85 | | | | | | | |
| LCV - 840 | 1215 | 110 | 180 | 720 | 290 | 180 | 225 | 360 | 4-24 | 280 | 216.3 | 2" | 1¼" | 140 |
| 850 | 1415 | | | 920 | | | | | | | | | | 150 |
| 860 | 1615 | | | 1120 | | | | | | | | | | 160 |
| 870 | 1835 | | | 1340 | | | | | | | | | | 175 |
| 880 | 2045 | | | 1550 | | | | | | | | | | 190 |
| LCV - 1080 | 1320 | 130 | 220 | 780 | 350 | 220 | 235 | 440 | 4-24 | 340 | 267.4 | 2½" | 2" | 210 |
| 1090 | 1440 | | | 900 | | | | | | | | | | 225 |
| 10100 | 1550 | | | 1010 | | | | | | | | | | 235 |
| 10120 | 1790 | | | 1250 | | | | | | | | | | 260 |
| 10140 | 2030 | | | 1490 | | | | | | | | | | 280 |
| 10160 | 2270 | | | 1730 | | | | | | | | | | 310 |

NOTE : Performance curve is same with HC, LC

MCF & MLF TYPE (Sea Water)



DIMENSION

Test Pressure
Shell Side 15kg/cm²
Tube Side 10kg/cm²

(unit : mm)

| TYPE | A | B | C | D | E | F | G | H | J | K | L | M | N | Q | R | S | T | WEIGHT (kg) |
|-------------|------|------|------|------|------|-----|-------|-----|------|----|-----|-----|-------|-----|-------|-----|-----|-------------|
| MCF - 620 | 1012 | 79.5 | 160 | 620 | 784 | 150 | 219.5 | 180 | 66.5 | 30 | 220 | 140 | 18x30 | 230 | 165.2 | 1½B | 1½B | 71 |
| 623 | 1122 | | | 735 | 894 | | | | | | | | | | | | | 75 |
| 625 | 1192 | | | 805 | 964 | | | | | | | | | | | | | 78 |
| 627 | 1267 | | | 880 | 1039 | | | | | | | | | | | | | 81 |
| 630 | 1372 | | | 985 | 1144 | | | | | | | | | | | | | 85 |
| MCF - 840 | 1180 | 84 | 200 | 720 | 888 | 180 | 255 | 200 | 85 | 43 | 260 | 160 | 22x35 | 280 | 216.3 | 2B | 2B | 145 |
| 850 | 1380 | | | 920 | 1088 | | | | | | | | | | | | | 155 |
| 860 | 1580 | | | 1120 | 1288 | | | | | | | | | | | | | 165 |
| 870 | 1800 | | | 1340 | 1508 | | | | | | | | | | | | | 176 |
| 880 | 2010 | | | 1550 | 1718 | | | | | | | | | | | | | 187 |
| MCF - 1080 | 1290 | 94 | 220 | 780 | 968 | 220 | 285 | 250 | 85 | 43 | 320 | 200 | 22x35 | 340 | 267.4 | 2½B | 2½B | 225 |
| 1090 | 1410 | | | 900 | 1088 | | | | | | | | | | | | | 235 |
| 10100 | 1520 | | | 1010 | 1198 | | | | | | | | | | | | | 245 |
| 10120 | 1760 | | | 1250 | 1438 | | | | | | | | | | | | | 270 |
| 10140 | 2000 | | | 1490 | 1678 | | | | | | | | | | | | | 295 |
| 10160 | 2240 | 1730 | 1918 | 320 | | | | | | | | | | | | | | |
| MLF - 625 | 830 | 97 | 160 | 400 | 594 | 160 | 245 | 180 | 66.5 | 30 | 220 | 140 | 18x30 | 230 | 165.2 | 2B | 1½B | 72 |
| 630 | 960 | | | 530 | 724 | | | | | | | | | | | | | 77 |
| 640 | 1100 | | | 670 | 864 | | | | | | | | | | | | | 83 |
| 645 | 1220 | | | 790 | 984 | | | | | | | | | | | | | 88 |
| 650 | 1340 | | | 910 | 1104 | | | | | | | | | | | | | 93 |
| 660 | 1450 | | | 1020 | 1214 | | | | | | | | | | | | | 97 |
| 665 | 1540 | | | 1110 | 1304 | | | | | | | | | | | | | 101 |
| MLF - 860 | 1000 | 94 | 200 | 520 | 708 | 180 | 265 | 200 | 85 | 43 | 260 | 160 | 22x35 | 280 | 216.3 | 2½B | 2B | 130 |
| 870 | 1140 | | | 660 | 848 | | | | | | | | | | | | | 140 |
| 885 | 1260 | | | 780 | 968 | | | | | | | | | | | | | 148 |
| 8100 | 1380 | | | 900 | 1088 | | | | | | | | | | | | | 157 |
| 8110 | 1490 | | | 1010 | 1198 | | | | | | | | | | | | | 165 |
| 8120 | 1580 | | | 1100 | 1288 | | | | | | | | | | | | | 171 |
| 8135 | 1730 | | | 1250 | 1438 | | | | | | | | | | | | | 182 |
| 8145 | 1800 | | | 1320 | 1508 | | | | | | | | | | | | | 187 |
| 8160 | 1970 | 1490 | 1678 | 199 | | | | | | | | | | | | | | |
| MLF - 10110 | 1170 | 104 | 220 | 640 | 848 | 220 | 295 | 250 | 85 | 43 | 320 | 200 | 22x35 | 340 | 267.4 | 3B | 2½B | 201 |
| 10130 | 1290 | | | 760 | 968 | | | | | | | | | | | | | 213 |
| 10145 | 1410 | | | 880 | 1088 | | | | | | | | | | | | | 225 |
| 10165 | 1520 | | | 990 | 1198 | | | | | | | | | | | | | 236 |
| 10180 | 1610 | | | 1080 | 1288 | | | | | | | | | | | | | 245 |
| 10200 | 1760 | | | 1230 | 1438 | | | | | | | | | | | | | 261 |
| 10210 | 1830 | | | 1300 | 1508 | | | | | | | | | | | | | 268 |
| 10240 | 2000 | | | 1470 | 1678 | | | | | | | | | | | | | 285 |
| 10260 | 2120 | | | 1590 | 1798 | | | | | | | | | | | | | 297 |

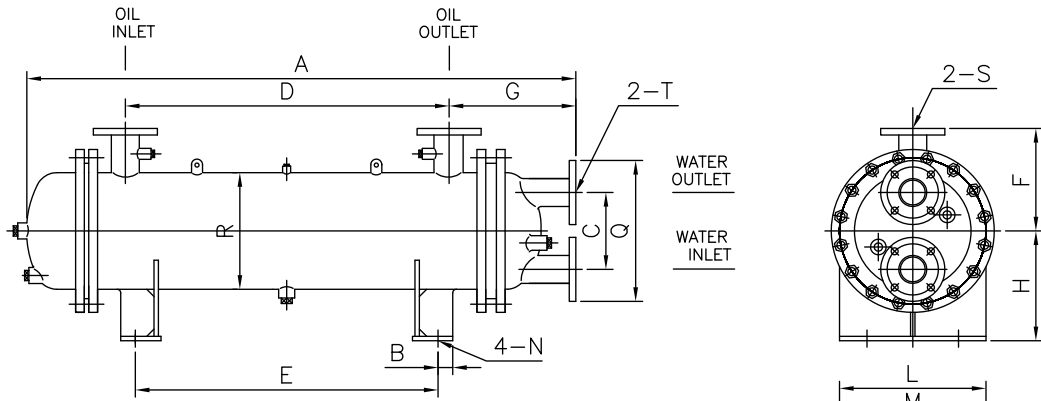
NOTE : •Larger size is available.

MCF type is bare tubes. Performance curve is same with HC type

MLF type is low fin tubes. Performance curve is same with LC type

•If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

HCL TYPE (Fresh Water)



Test Pressure Shell Side 15kg/cm²
Tube Side 10kg/cm²

DIMENSION

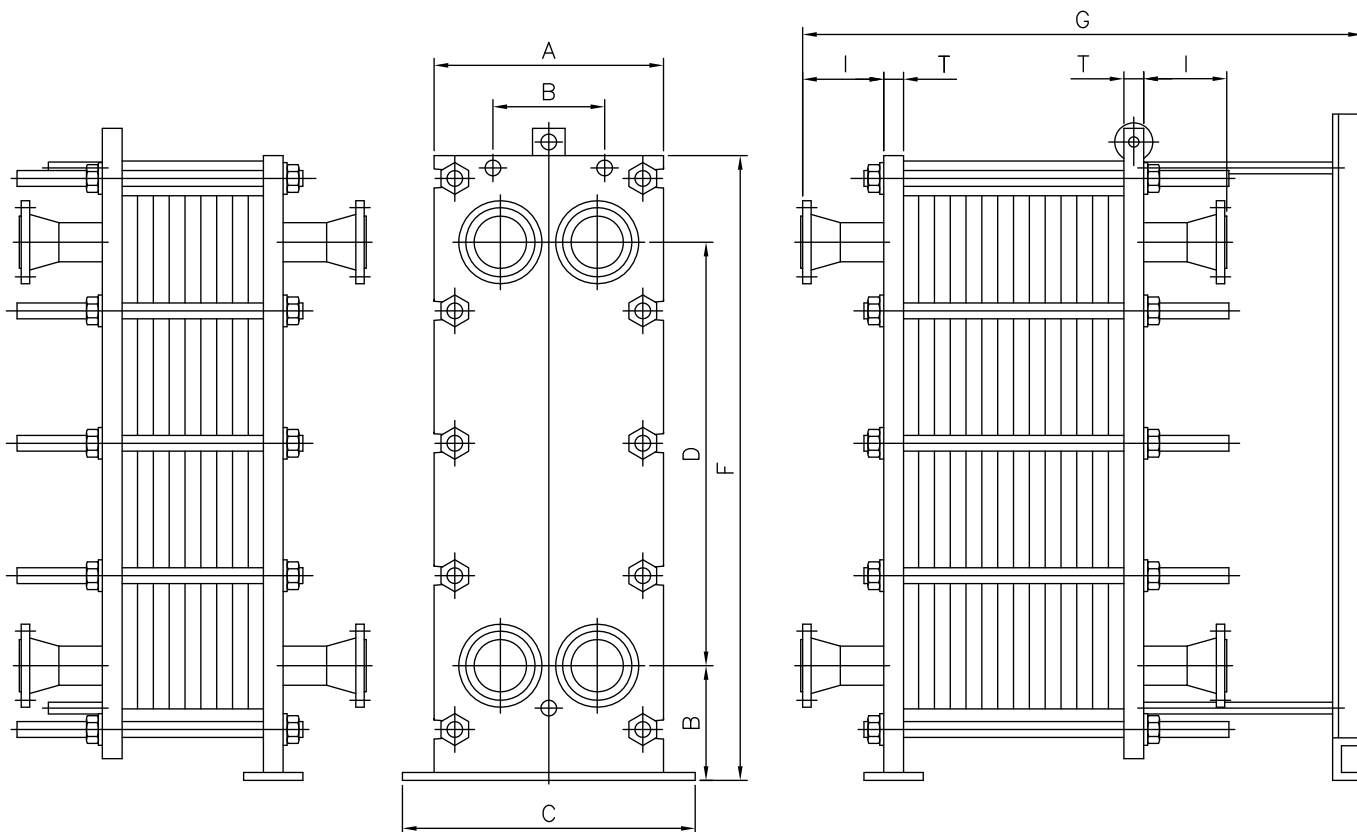
(unit : mm)

| TYPE | A | B | C | D | E | F | G | H | J | K | L | M | N | Q | R | S | T | WEIGHT (kg) |
|-----------------|------|-----|------|------|------|------|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|----|-------------|
| HCL - 12100F-11 | 1368 | 25 | 210 | 750 | 700 | 280 | 346 | 300 | 105 | 40 | 400 | 250 | 22X40 | 445 | 318.5 | 3" | 3" | 320 |
| 12150F-11 | 1828 | 155 | | 1210 | 900 | | | | | | | | | | | | | 380 |
| 12200F-11 | 2298 | 265 | | 1680 | 1150 | | | | | | | | | | | | | 440 |
| 12250F-11 | 2768 | 375 | | 2150 | 1400 | | | | | | | | | | | | | 500 |
| 12300F-11 | 3228 | 505 | | 2610 | 1600 | | | | | | | | | | | | | 560 |
| 12350F-11 | 3698 | 615 | | 3080 | 1850 | | | | | | | | | | | | | 620 |
| 12400F-11 | 4158 | 720 | | 3540 | 2100 | | | | | | | | | | | | | 680 |
| HCL - 14150F-11 | 1533 | 85 | 220 | 920 | 750 | 295 | 333 | 320 | 105 | 40 | 400 | 300 | 24X50 | 490 | 355.6 | 3" | 3" | 440 |
| 14200F-11 | 1913 | 175 | | 1300 | 950 | | | | | | | | | | | | | 510 |
| 14250F-11 | 2293 | 265 | | 1680 | 1150 | | | | | | | | | | | | | 570 |
| 14300F-11 | 2673 | 355 | | 2060 | 1350 | | | | | | | | | | | | | 640 |
| 14350F-11 | 3063 | 450 | | 2450 | 1550 | | | | | | | | | | | | | 700 |
| 14400F-11 | 3443 | 565 | | 2830 | 1700 | | | | | | | | | | | | | 770 |
| 14450F-11 | 3823 | 655 | | 3210 | 1900 | | | | | | | | | | | | | 830 |
| HCL - 16200F-11 | 1664 | 70 | 260 | 990 | 850 | 348 | 371 | 350 | 100 | 40 | 400 | 300 | 26X50 | 560 | 406.4 | 4" | 3" | 550 |
| 16300F-11 | 2304 | 240 | | 1630 | 1150 | | | | | | | | | | | | | 690 |
| 16400F-11 | 2934 | 405 | | 2260 | 1450 | | | | | | | | | | | | | 830 |
| 16500F-11 | 3564 | 545 | | 2890 | 1800 | | | | | | | | | | | | | 970 |
| 16600F-11 | 4194 | 710 | | 3520 | 2100 | | | | | | | | | | | | | 1110 |
| 16700F-11 | 4824 | 875 | | 4150 | 2400 | | | | | | | | | | | | | 1250 |
| HCL - 18200F-11 | 1391 | 30 | | 310 | 660 | | | | | | | | | | | | | 600 |
| 18300F-11 | 1861 | 140 | 1130 | | 850 | 720 | | | | | | | | | | | | |
| 18400F-11 | 2341 | 255 | 1610 | | 1100 | 850 | | | | | | | | | | | | |
| 18500F-11 | 2811 | 365 | 2080 | | 1350 | 980 | | | | | | | | | | | | |
| 18600F-11 | 3281 | 475 | 2550 | | 1600 | 1100 | | | | | | | | | | | | |
| 18700F-11 | 3761 | 590 | 3030 | | 1850 | 1230 | | | | | | | | | | | | |
| 18800F-11 | 4231 | 700 | 3500 | | 2100 | 1360 | | | | | | | | | | | | |
| HCL - 20300F-11 | 1584 | 25 | 360 | | 800 | 750 | 410 | 429 | 450 | 100 | 40 | 500 | 300 | 26X50 | 675 | 508.0 | 4" | 3" |
| 20400F-11 | 1964 | 90 | | 1180 | 1000 | 880 | | | | | | | | | | | | |
| 20500F-11 | 2334 | 200 | | 1550 | 1150 | 1000 | | | | | | | | | | | | |
| 20600F-11 | 2704 | 285 | | 1920 | 1350 | 1130 | | | | | | | | | | | | |
| 20700F-11 | 3084 | 375 | | 2300 | 1550 | 1250 | | | | | | | | | | | | |
| 20800F-11 | 3454 | 460 | | 2670 | 1750 | 1380 | | | | | | | | | | | | |
| 20900F-11 | 3824 | 575 | | 3050 | 1900 | 1500 | | | | | | | | | | | | |
| 201000F-11 | 4204 | 660 | | 3420 | 2100 | 1630 | | | | | | | | | | | | |
| 201100F-11 | 4574 | 745 | | 3790 | 2300 | 1750 | | | | | | | | | | | | |

NOTE : Larger size is available.

If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

SPH TYPE (PLATE HEAT EXCHANGER)



- Test Pressure : 9.9kg/cm²
- Design Temperature : 200 °C

DIMENSION

(unit : mm)

| TYPE | A | B | C | D | E | F | G (MAX) | I | T | Conne- -tion (INCH) | Surface area(m ²) | Flow rate (MAX.m ³ /hr) |
|---------|------|-----|------|------|-----|------|------------|-----|----|---------------------------|----------------------------------|---------------------------------------|
| SPH-032 | 200 | 70 | 240 | 377 | 139 | 580 | 1000 | 100 | 20 | 1 1/4" | 0.041 | 10 |
| SPH-050 | 400 | 163 | 440 | 830 | 287 | 1250 | 1500 | 150 | 30 | 2" | 0.18 | 35 |
| SPH-065 | 330 | 135 | 370 | 592 | 150 | 826 | 1520 | 150 | 25 | 2 1/2" | 0.125 | 60 |
| SPH-080 | 550 | 257 | 630 | 1010 | 321 | 1487 | 2000 | 200 | 40 | 3" | 0.32 | 100 |
| SPH-100 | 530 | 257 | 660 | 1227 | 380 | 1814 | 2000 | 200 | 40 | 4" | 0.46 | 200 |
| SPH-125 | 600 | 275 | 680 | 1025 | 280 | 1450 | 2000 | 200 | 40 | 5" | 0.395 | 220 |
| SPH-160 | 600 | 245 | 680 | 1125 | 290 | 1580 | 3000 | 200 | 40 | 6" | 0.47 | 450 |
| SPH-200 | 740 | 307 | 840 | 1360 | 398 | 2050 | 3000 | 250 | 60 | 8" | 0.63 | 700 |
| SPH-250 | 1068 | 500 | 1068 | 1865 | 423 | 2550 | 3500 | 300 | 80 | 10" | 1.28 | 1100 |
| SPH-300 | 1068 | 540 | 1068 | 1865 | 485 | 2695 | 4000 | 300 | 80 | 12" | 1.63 | 1500 |

NOTE : If required, please give specify connection part such as PT, NPT, JIS flange, ANSI flange.

Heat-Transfer Tube

Low Fin Tube

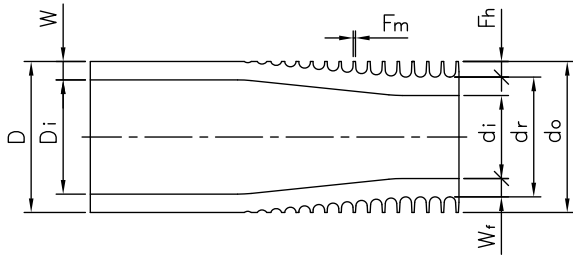
• Construction

• Application

Condenser and evaporator of airconditioners and refrigerating machine. Oil cooler, many other heat exchanger.

• Materials

- Copper and Copper Alloy
- Carbon steel
- Stainless steel
- Titanium



D – Outside Diameter of Plain End
 Di – Inside Diameter of Plain End
 dr – Root Diameter
 do – Diameter Over Fins
 di – Inside Diameter of Fin Section
 W – Wall Thickness of Plain End
 Wf – Wall Thickness Under Fin
 Fh – Height of Fin
 Fm – Mean Fin Thickness

DIMENSION

(unit : mm)

| Fins/inch | Nom. dimensions | | Plain and section dimensions. | | Finned section dimensions | | | out surface area (m ² /mX10 ⁻²) | Out. /in surface area ratio | cross sectional area (m ² /X10 ⁻⁴) |
|-----------|-----------------|-------------|-------------------------------|--------------------|---------------------------|-------------------|---------------------|---|-----------------------------|--|
| | Out. dia. | wall thick. | (D) Out. dia. | (W) wall thick. | (do) Out. dia. | (dr) Root dia. | (Wf) wall thick. | | | |
| 19 | 12.7 | 0.81 | 12.7 | 1.24 | 12.7 + 0.-0.4 | 9.53 | 0.71 | 9.75 | 4.79 | 0.49 |
| | | 1.07 | | 1.47 | | | | | 5.13 | 0.43 |
| | | 1.24 | | 1.65 | | | | | 6.38 | 0.30 |
| | | 0.71 | | 1.07 | | | | | 3.48 | 1.00 |
| | 15.88 | 0.89 | 15.88 | 1.32 | 15.88 + 0.-0.4 | 12.7 | 0.94 | 12.34 | 3.60 | 0.94 |
| | | 1.07 | | 1.47 | | | | | 3.72 | 0.88 |
| | | 1.24 | | 1.65 | | | | | 3.85 | 0.82 |
| | | 1.65 | | 2.11 | | | | | 4.18 | 0.70 |
| | | 0.71 | | 1.24 | | | | | 3.33 | 1.64 |
| | | 0.89 | | 1.32 | | | | | 3.41 | 1.56 |
| | 19.05 | 1.07 | 19.05 | 1.47 | 19.05 + 0.-0.4 | 15.88 | 0.94 | 15.12 | 3.50 | 1.48 |
| | | 1.24 | | 1.65 | | | | | 3.60 | 1.41 |
| | | 1.65 | | 2.11 | | | | | 3.84 | 1.24 |
| | | 2.11 | | 2.41 | | | | | 4.13 | 1.07 |
| | | 0.89 | | 1.32 | | | | | 3.30 | 2.34 |
| | | 1.07 | | 1.47 | | | | | 3.37 | 2.25 |
| | 22.23 | 1.24 | 22.23 | 1.65 | 22.23 + 0.-0.4 | 19.05 | 1.12 | 17.92 | 3.44 | 2.15 |
| | | 1.65 | | 2.11 | | | | | 3.62 | 1.95 |
| | | 2.11 | | 2.41 | | | | | 3.85 | 1.73 |
| | | 1.07 | | 1.47 | | | | | 3.27 | 3.17 |
| 25.4 | 1.24 | 25.4 | 1.65 | 25.4 + 0.-0.4 | 22.23 | 1.12 | 20.67 | 3.33 | 3.06 | |
| | 1.65 | | 2.11 | | | | | 3.48 | 2.81 | |
| | 2.11 | | 2.41 | | | | | 3.65 | 2.55 | |
| 26 | 12.7 | 0.81 | 12.7 | 1.42 | 12.7 + 0.-0.4 | 9.53 | 0.71 | 11.91 | 4.79 | 0.43 |
| | | 1.07 | | 1.68 | | | | | 5.13 | 0.43 |
| | | 1.24 | | 1.88 | | | | | 6.38 | 0.39 |
| | 15.88 | 0.71 | 15.88 | 1.25 | 15.88 + 0.-0.4 | 12.7 | 0.60 | 15.34 | 4.30 | 0.97 |
| | | 0.89 | | 1.42 | | | | | 4.47 | 0.94 |
| | | 1.07 | | 1.68 | | | | | 4.63 | 0.89 |
| | | 1.24 | | 1.88 | | | | | 4.78 | 0.82 |
| | 19.05 | 0.81 | 19.05 | 1.42 | 19.05 - 0.-0.4 | 15.88 | 0.70 | 18.79 | 4.37 | 1.65 |
| | | 0.89 | | 1.50 | | | | | 4.24 | 1.56 |
| | | 1.07 | | 1.68 | | | | | 4.36 | 1.48 |
| | | 1.24 | | 1.88 | | | | | 4.47 | 1.41 |
| | | 1.47 | | 2.11 | | | | | 4.37 | 1.35 |
| | | 1.65 | | 2.28 | | | | | 4.28 | 1.30 |
| | | 1.83 | | 2.44 | | | | | 4.20 | 1.26 |
| | 22.23 | 0.89 | 22.23 | 1.50 | 22.23 + 0.-0.4 | 19.05 | 0.79 | 27.22 | 4.02 | 2.34 |
| | | 1.07 | | 1.68 | | | | | 4.19 | 2.25 |
| | | 1.24 | | 1.88 | | | | | 4.27 | 2.15 |
| | 25.4 | 1.07 | 25.4 | 1.68 | 25.4 + 0.-0.4 | 22.23 | 0.94 | 25.67 | 4.07 | 3.18 |
| | | 1.24 | | 1.88 | | | | | 4.14 | 3.06 |
| | | 1.65 | | 2.36 | | | | | 4.32 | 2.81 |
| 1.83 | | 2.44 | | 4.59 | | | | | 2.33 | |
| 1.65 | | 2.11 | | | | | | | | |

NOTE : We can produce Fin tube and special Fin tube by give an order.