

# 3-way Control Valve type L3FM-T

Gun metal, PN 10, DN 65 – 300 / PN 6, DN 350 – 800 mm

0-2.2.10-F

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## TECHNICAL DATA

|                                                                                    |                                  |
|------------------------------------------------------------------------------------|----------------------------------|
| <b>Materials:</b>                                                                  |                                  |
| - Valve body,                                                                      | Gun metal RG 5<br>CuSn5Zn5Pb5-C  |
| - Slide                                                                            | Alu bronze<br>CuAL10Fe5Ni5       |
| - O-ring                                                                           | NBR 70A                          |
| - U-ring                                                                           | PTFE                             |
| - Gasket                                                                           | AF1000                           |
| <b>Nominal pressure</b>                                                            |                                  |
| - 65-300 L3FM-T                                                                    | PN 10, max. 100°C (option 120°C) |
| - 350-800 L3FM-T                                                                   | PN 6, max. 100°C (option 120°C)  |
| <b>Flow characteristic</b>                                                         |                                  |
| Almost linear                                                                      |                                  |
| <b>Leakage rate</b>                                                                |                                  |
| max 0.5%                                                                           |                                  |
| <b>Regulating capability</b>                                                       |                                  |
| Kvs/Kvr > 25                                                                       |                                  |
| <b>Flanges</b>                                                                     |                                  |
| EN 1092-2                                                                          |                                  |
| PN 6/10                                                                            |                                  |
| <b>Counter flanges (suggested)</b>                                                 |                                  |
| DIN 2631 – PN 6                                                                    |                                  |
| DIN 2632 – PN 10                                                                   |                                  |
| DIN 2633 – PN 16                                                                   |                                  |
| <b>Max. pressure <math>\Delta p_L</math>, against which the control can close:</b> |                                  |
| - 65-125 L3FM-T                                                                    | 16 bar                           |
| - 150-300 L3FM-T                                                                   | 10 bar                           |
| - 350-800 L3FM-T                                                                   | 6 bar                            |

Subject to change without notice.

## APPLICATIONS

Control valve type L3FM-T is a three-way control valve with a slide for quarter turn operation designed for regulating of sea water. The valves are designed for use in conjunction with valve motor type CAR with handle for manual operation or for use in conjunction with a pneumatic actuator.

## DESIGN

The valve body is made of gun metal, while the slide is made of alu bronze. The valve flanges are drilled according to EN 1092-2.

## FUNCTION

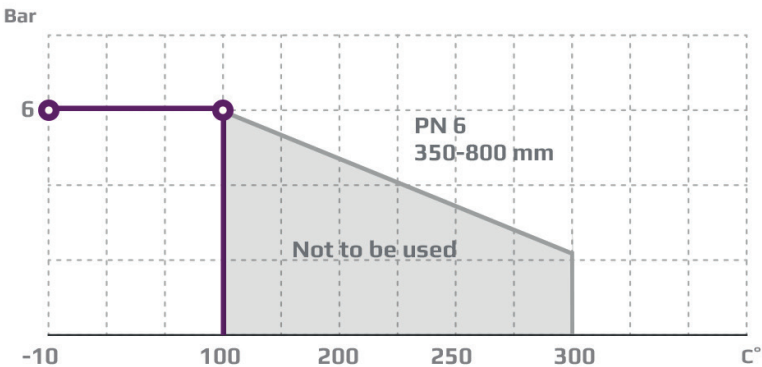
The slide is firmly connected with the actuator spindle. When the slide is in the one extreme position by turning the spindle, connection A-AB is kept fully open and connection B-AB is fully closed. In the other extreme position connection A-AB is fully closed and connection B-AB is fully open. In the intermediate positions the opening degrees change proportionally. The valve has a small tolerance between body and slide. To minimize the leakage an O-ring is mounted in a groove on the slide.

## FEATURES

- Sea water resistant
- Simple design secures reliable controls and reduces costly downtime
- Low leakage rate secures energy savings
- Flexible choice of port placements
- Can be used for both mixing and diverting

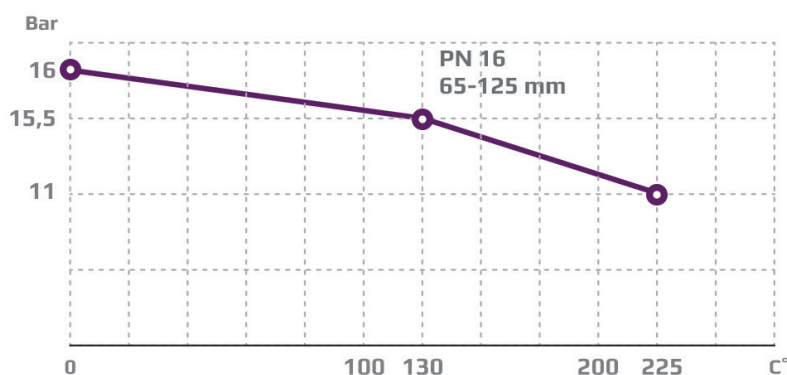
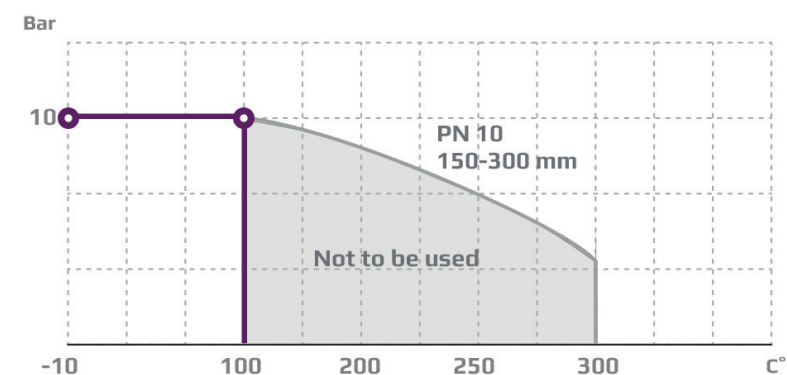
## PRESSURE/TEMPERATURE DIAGRAM

According to DIN 2401

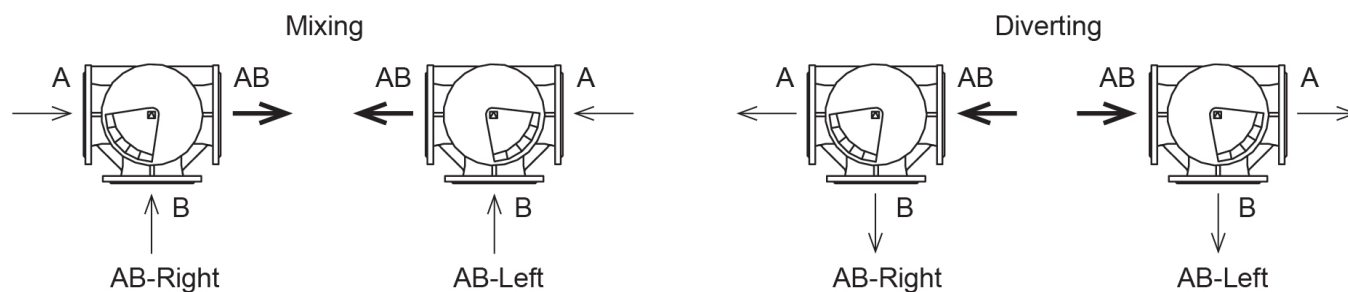


## PRESSURE/TEMPERATURE DIAGRAM

According to DIN 2401



## PORT NUMBERING/CONFIGURATION



Further specification for ordering (e.g. 400 L3FM-T, AB-Right)

## MOUNTING

The valve connections are marked A, B and AB. The slide is operating between A and B. Check slide position before installation in the pipe. The slide position is marked on the top of the shaft. Valve can be supplied in two different configurations, AB-Right and AB-Left. A valve with AB-middle port is available on request. Please note that the supplied configuration is according to installation. The valve can be installed with vertical as well as horizontal spindles. The valve must be mounted in a way that the valve actuator will be exposed to a minimum of moisture and unnecessary vibrations.

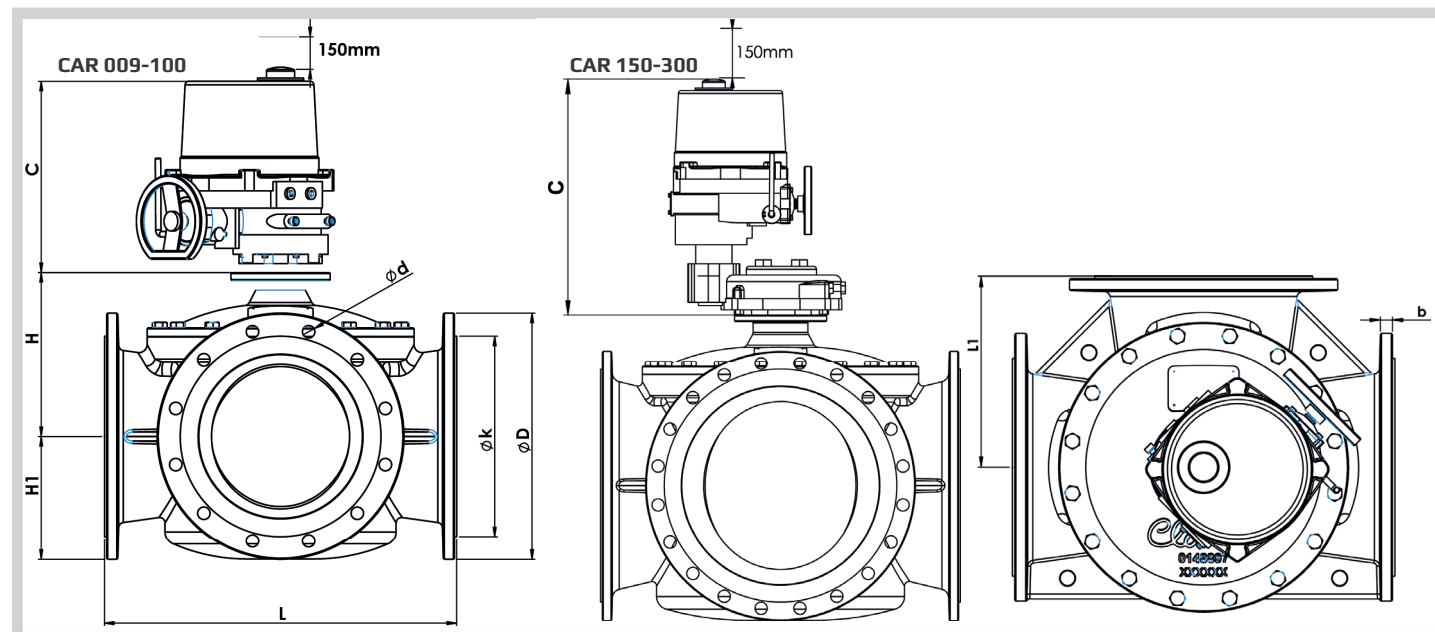
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## DIMENSION SKETCH



| Type        |         |          |         |          |         |         | EN 1092-2      |                |                          | ANSI Class 150 |                |                          | JIS B 2210 5K  |                |                          | JIS B 2210 10K |                |                          |
|-------------|---------|----------|---------|----------|---------|---------|----------------|----------------|--------------------------|----------------|----------------|--------------------------|----------------|----------------|--------------------------|----------------|----------------|--------------------------|
|             | L<br>mm | L1<br>mm | H<br>mm | H1<br>mm | b<br>mm | C<br>mm | D (dia.)<br>mm | k (dia.)<br>mm | d mm<br>dia.<br>(number) | D (dia.)<br>mm | k (dia.)<br>mm | d mm<br>dia.<br>(number) | D (dia.)<br>mm | k (dia.)<br>mm | d mm<br>dia.<br>(number) | D (dia.)<br>mm | k (dia.)<br>mm | d mm<br>dia.<br>(number) |
| 65 L3FM-TR  | 292     | 146      | 135     | 90       | 20      | 273     | 185            | 145            | 19x(8)                   | 180            | 190,7          | 19x(8)                   | 155            | 130            | 15x(4)                   | 175            | 140            | 19x(4)                   |
| 80 L3FM-TR  | 292     | 146      | 140     | 94       | 20      | 273     | 200            | 160            | 19x(8)                   | 190            | 190,8          | 19x(8)                   | 180            | 145            | 19x(4)                   | 185            | 150            | 19x(8)                   |
| 100 L3FM-TR | 350     | 175      | 158     | 112      | 17      | 273     | 235            | 190            | 23x(8)                   | 230            | 190,5          | 19x(8)                   | 200            | 165            | 19x(8)                   | 210            | 175            | 19x(8)                   |
| 125 L3FM-TR | 400     | 200      | 179     | 123      | 17      | 273     | 270            | 220            | 23x(8)                   | 235            | 216            | 22x(8)                   | 235            | 200            | 19x(8)                   | 250            | 210            | 23x(8)                   |
| 150 L3FM-TR | 438     | 219      | 196     | 139      | 20      | 276     | 285            | 240            | 23x(8)                   | 280            | 241            | 22x(8)                   | 265            | 230            | 19x(8)                   | 280            | 240            | 23x(8)                   |
| 200 L3FM-TR | 530     | 270      | 236     | 175      | 21      | 361     | 340            | 295            | 23x(12)                  | 343            | 299            | 23x(8)                   | 320            | 280            | 23x(8)                   | 320            | 290            | 23x(12)                  |
| 250 L3FM-TR | 592     | 300      | 273     | 205      | 23      | 361     | 400            | 355            | 28x(12)                  | 407            | 362            | 26x(12)                  | 385            | 345            | 23x(12)                  | 400            | 355            | 25x(12)                  |
| 300 L3FM-TR | 649     | 330      | 305     | 230      | 25,5    | 361     | 455            | 410            | 28x(12)                  | 483            | 432            | 26x(12)                  | 430            | 390            | 23x(12)                  | 445            | 400            | 25x(16)                  |
| 350 L3FM-TR | 717     | 360      | 337     | 255      | 25,5    | 361     | 505            | 460            | 23x(16)                  | 534            | 477            | 29x(12)                  | 480            | 435            | 25x(12)                  | 490            | 445            | 25x(16)                  |
| 400 L3FM-TR | 770     | 385      | 375     | 285      | 26      | 361     | 565            | 515            | 28x(16)                  | 597            | 540            | 29x(12)                  | 540            | 495            | 25x(16)                  | 560            | 510            | 27x(16)                  |
| 450 L3FM-TR | 820     | 410      | 391     | 310      | 26,5    | 556     | 615            | 565            | 28x(20)                  | 635            | 578            | 32x(16)                  | 605            | 555            | 25x(16)                  | 620            | 565            | 27x(20)                  |
| 500 L3FM-TR | 900     | 455      | 425     | 340      | 27,5    | 556     | 670            | 620            | 28x(20)                  | 699            | 635            | 32x(20)                  | 655            | 605            | 25x(20)                  | 675            | 620            | 27x(20)                  |
| 550 L3FM-TR | 900     | 455      | 425     | 373      | 27,5    | 556     |                | -              |                          | -              |                |                          | 720            | 665            | 27x(20)                  | 745            | 680            | 33x(20)                  |
| 600 L3FM-TR | 1000    | 505      | 470     | 393      | 31,0    | 556     | 780            | 725            | 31x(20)                  | 813            | 750            | 35x(20)                  | 770            | 715            | 25x(20)                  | 795            | 730            | 33x(24)                  |
| 650 L3FM-TR | 1050    | 525      | 515     | 423      | 35      | 556     |                |                |                          |                |                |                          | 825            | 770            | 27x(24)                  | 845            | 780            | 33x(24)                  |
| 700 L3FM-TR | 1106    | 553      | 519     | 462      | 34,0    | 556     | 895            | 840            | 31x(24)                  |                |                |                          | 875            | 820            | 27x(24)                  | 905            | 840            | 33x(24)                  |
| 800 L3FM-TR | 1200    | 600      | 579     | 507      | 37      | 556     | 1015           | 950            | 31x(24)                  |                |                |                          | 995            | 930            | 32x(24)                  | 1020           | 950            | 33x(28)                  |

## SPECIFICATIONS

| Type       | Flange connection<br>DN in mm | k <sub>vs</sub> -value <sup>1)</sup><br>Mixing valve<br>m³/h | k <sub>vs</sub> -value <sup>1)</sup><br>Diverting valve<br>m³/h | Torque<br>Nm<br>For inlet P* | Weight<br>kg |
|------------|-------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|------------------------------|--------------|
| 65 L3FM-T  | 65                            | 95                                                           | 120                                                             | 46                           | 28           |
| 80 L3FM-T  | 80                            | 122                                                          | 154                                                             | 55                           | 32           |
| 100 L3FM-T | 100                           | 175                                                          | 220                                                             | 90                           | 47           |
| 125 L3FM-T | 125                           | 245                                                          | 330                                                             | 150                          | 64           |
| 150 L3FM-T | 150                           | 395                                                          | 425                                                             | 160                          | 75           |
| 200 L3FM-T | 200                           | 800                                                          | 1100                                                            | 250                          | 114          |
| 250 L3FM-T | 250                           | 1500                                                         | 2100                                                            | 395                          | 159          |
| 300 L3FM-T | 300                           | 2000                                                         | 2650                                                            | 550                          | 207          |
| 350 L3FM-T | 350                           | 2530                                                         | 3380                                                            | 640                          | 278          |
| 400 L3FM-T | 400                           | 3050                                                         | 3950                                                            | 895                          | 346          |
| 450 L3FM-T | 450                           | 3680                                                         | 4480                                                            | 1050                         | 433          |
| 500 L3FM-T | 500                           | 4150                                                         | 5250                                                            | 1300                         | 563          |
| 550 L3FM-T | 550                           | 4150                                                         | 5250                                                            | 1300                         | 575          |
| 600 L3FM-T | 600                           | 4800                                                         | 6050                                                            | 1850                         | 816          |
| 700 L3FM-T | 700                           | 5500                                                         | 7000                                                            | TBC                          | 1150         |
| 800 L3FM-T | 800                           | 6200                                                         | 8000                                                            | 2600                         | 2100         |

1) kvs-value for port A and B 50% open.

\*Torque calculated at max inlet P for:

DN 65 - 125 = 16 Bar

DN 150-300 = 10 Bar

DN 350-800 = 5 Bar