# INTEGRATED THERMOSTATIC VALVE

# INTEGRATED THERMOSTATIC VALVE “VIADRUS ITV“ with adjustable valve insert “V”

Thanks to application of thermostatic valves in heating equipment it is possible to control individually the required room temperature and save the energy. This ensures reduction of heating costs.
Radiators with ITV can be connected to all types of piping DN 10 - DN 20 (3/8 ", 1/2", 3/4").
Integrated thermostatic valve “VIADRUS ITV” with adjustable valve insert “V” was developed based on cooperation of company VIADRUS a.s. with Danfoss company. This valve can be used for the above specified dimension – size range.
Integrated thermostatic valve “VIADRUS ITV“ with adjustable valve insert “V” is supplied with a pair of heating sections coupled together using modified radiator nipples.
In the columns of radiators there are internal threads for screwed fitting of radiators 1/2 " for carrying out of the bottom connection.
For the integrated thermostatic valve you can additionally order a thermostatic head RAE 5054 (Code 12887).
Currently are produced versions for radiators with 5/4 "thread and 1" thread.

**For 5/4” thread** can be used for heating bodies of the following types:

| **KALOR** | IN | **KALOR bottom conecting** | IN | **KALOR with foot*** | IN |
|---|---|---|---|---|---|
| 350/110 | 94 | | | 350/110 | 95 |
| 350/160 | 1 | 350/160 | 2 | 350/160 | 77 |
| 500/70 | 3 | 500/70 | 4 | 500/70 | 79 |
| 500/110 | 5 | 500/110 | 6 | 500/110 | 80 |
| 500/160 | 7 | 500/160 | 8 | 500/160 | 78 |
| 500/220 | 9 | 500/220 | 10 | 500/220 | 82 |
| 600/110 | 96 | | | 600/110 | 97 |
| 600/160 | 11 | 600/160 | 12 | 600/160 | 81 |
| 900/160 | 15 | 900/160 | 16 | 900/160 | 84 |

| **KALOR 3** | IN | **KALOR 3 bottom conecting** | IN |
|---|---|---|---|
| 350/160 | 17 | 350/160 | 18 |
| 500/110 | 21 | 500/110 | 22 |
| 500/160 | 23 | 500/160 | 24 |

| **BOHEMIA** | IN | | | **BOHEMIA with foot*** | IN |
|---|---|---|---|---|---|
| 450/220 | 33 | | | 450/220 | 34 |
| 800/220 | 69 | | | 800/220 | 70 |

| **BOHEMIA R** | IN | | | **BOHEMIA R with foot*** | IN |
|---|---|---|---|---|---|
| 450/225 | 67 | | | 450/225 | 68 |
| 800/220 | 71 | | | 800/220 | 72 |

| **ATENA** | IN | | | **ATENA with foot*** | IN |
|---|---|---|---|---|---|
| 400/172 | 92 | | | 400/172 | 93 |

| **WINDSOR** | IN | | | **WINDSOR with foot*** | IN |
|---|---|---|---|---|---|
| 350/180 | 110 | | | 350/180 | 111 |
| 500/177 | 106 | | | 500/177 | 107 |
| 600/180 | 108 | | | 600/180 | 109 |

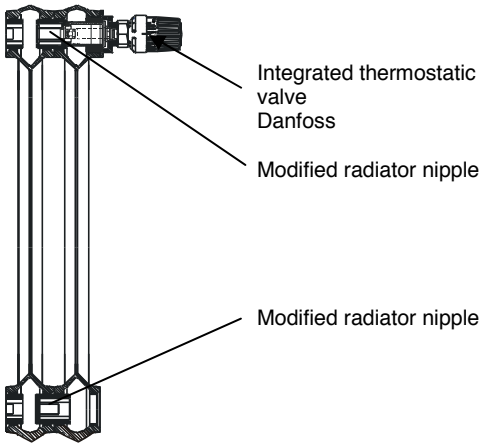
**For 1” thread** can be used for heating bodies of the following types:

| **TERMO** | IN | **TERMO bottom conecting** | IN |
|---|---|---|---|
| 350/95 | 73 | 350/95 | 112 |
| 500/95 | 27 | 500/95 | 36 |
| 500/130 | 28 | 500/130 | 37 |
| 623/95 | 29 | 623/95 | 38 |
| 623/130 | 30 | 623/130 | 39 |
| 813/95 | 31 | 813/95 | 40 |
| 813/130 | 32 | 813/130 | 41 |

| **STYL** | IN | **STYL bottom conecting** | IN |
|---|---|---|---|
| 500/130 | 35 | 500/130 | 43 |

*ITV only at the customer's request

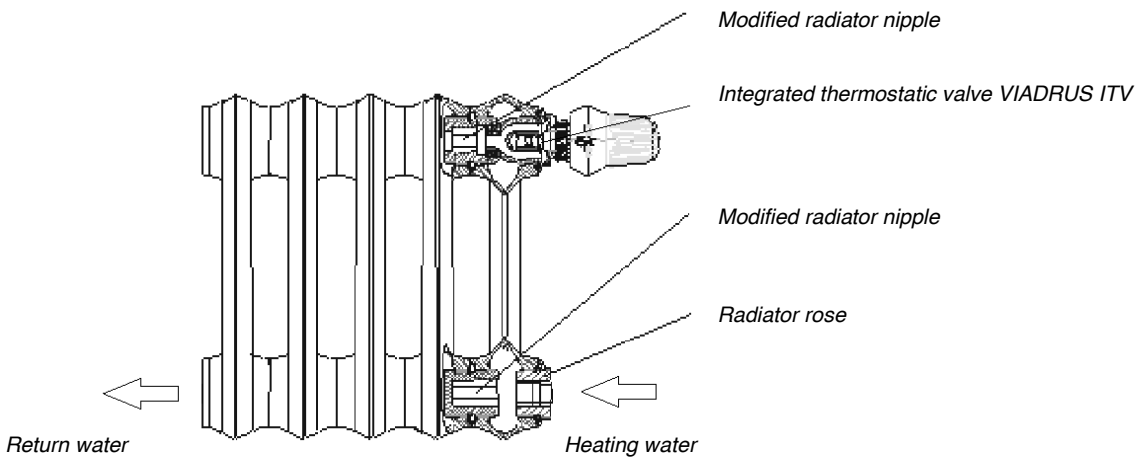
Schematic representation of two connected sections with integrated thermostatic valve and adjustable valve insert is illustrated on the following figure:



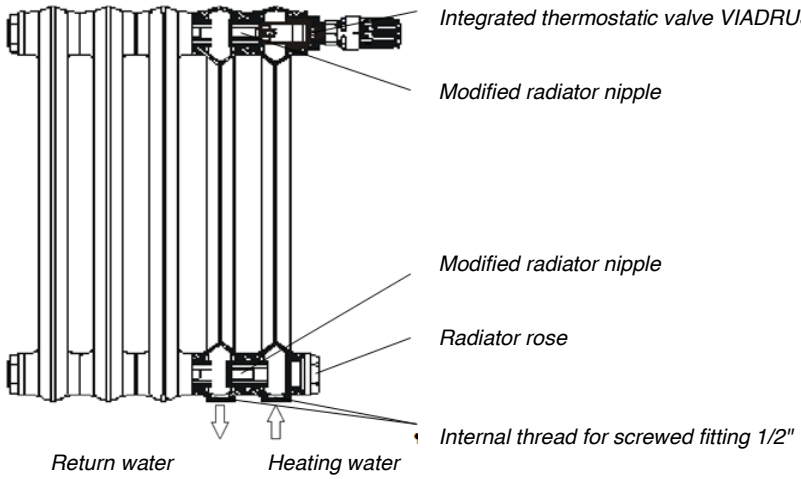

# ADVANTAGES OF INTEGRATED THERMOSTATIC VALVE VIADRUS ITV:

- More advanced heating water connection
- Installation of integrated valve directly into heating body
- Simpler assembly of heating bodies
- Possibility of connecting the left and right

Integrated thermostatic valve "VIADRUS ITV" with adjustable valve insert "V" allows a different method of heating and return water connection, which is illustrated on figures below.




**EXAMPLE OF A NEW INSTALLATION WITH INTEGRATED THERMOSTATIC VALVE (SIDE CONECTING)**




**EXAMPLE OF A NEW INSTALLATION WITH INTEGRATED THERMOSTATIC VALVE DANFOSS (BOTTOM CONECTING)**

# INTEGRATED THERMOSTATIC VALVE “VIADRUS ITV“

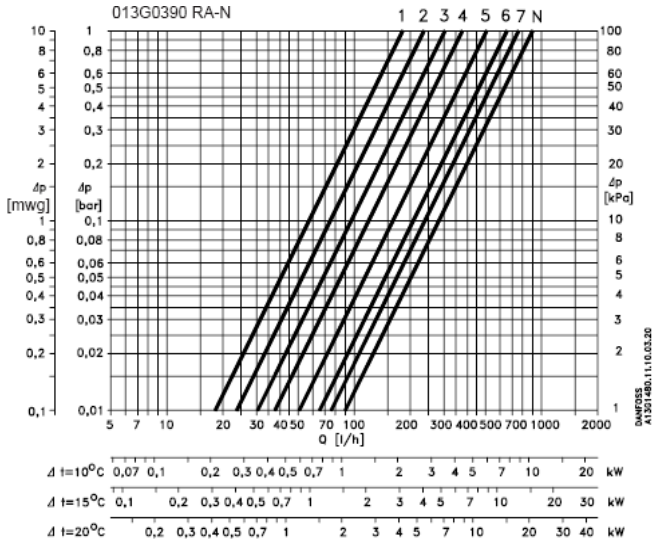
## With adjustable insert “V“

## TECHNICAL DESCRIPTION

- For warm-water central heating systems with gravity and forced circulation of heating water
- For two-pipe heating systems with medium volume of heating water
- With stepless pre-control (infinitely adjustable) for medium volume of heating water
- Manual setting
- Noiseless
- $k_v$ equal to 0.51
- Highest operating temperature of heating water below 120 °C
- Maximum operating pressure 8 bar
- Maximum differential pressure 2 bar
- Connection of heating body with ITV to all pipe sizes DN 10 – DN 20 (3/8“, 1/2“, 3/4“)
- pH value of heating water from 4 up to 9.5
- Adjustable valve insert “V“
- Possibility of connecting the left and right

**Integrated thermostatic valve Danfoss**

## TECHNICAL DATA




**Flow diagram for body of thermostatic valve V from firm Danfoss**

**Example of sizing (013G0390 RA-N)**

Specified: flow rate 75 l/h
To be found out: set-up at required pressure loss Dp = 10 kPa = 0,1 bar

The pressure loss looked for is obtained as a point of intersection of the flow line with selected valve parameter, e.g. at Xp = 2 K.

Result: position 3

| Supply number | Connecting hread | Value $k_v$ | | | | | | | | | Max. water temperature | Differential head | | Pressure scale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | N | °C | bar | bar | bar |
| 013G0390 | G 1/2“ | 0,14 | 0,21 | 0,26 | 0,32 | 0,46 | 0,59 | 0,73 | 0,87 | 1,05 | 120 | 0,05-0,2 | 0,6 max. | 16 |

**$k_v$** flow rate – amount of heating fluid (heating water), which flows through the valve at given pre-control

**Pp** – 2nd zone of proportionality – change of required value in order to ensure shifting of actuator (valve) from one limit position to the other one.

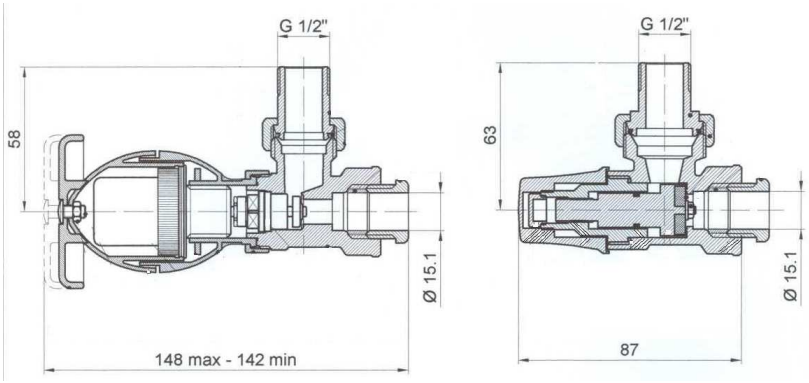
**2 K** – 2 Kelvin temperature difference for operation of the valve (for apartments – 2, for industrial halls - 3)

# RETRO VALVES

# THE SET OF RETRO VALVE BOHEMIA WITH A THERMOSTATIC HEAD

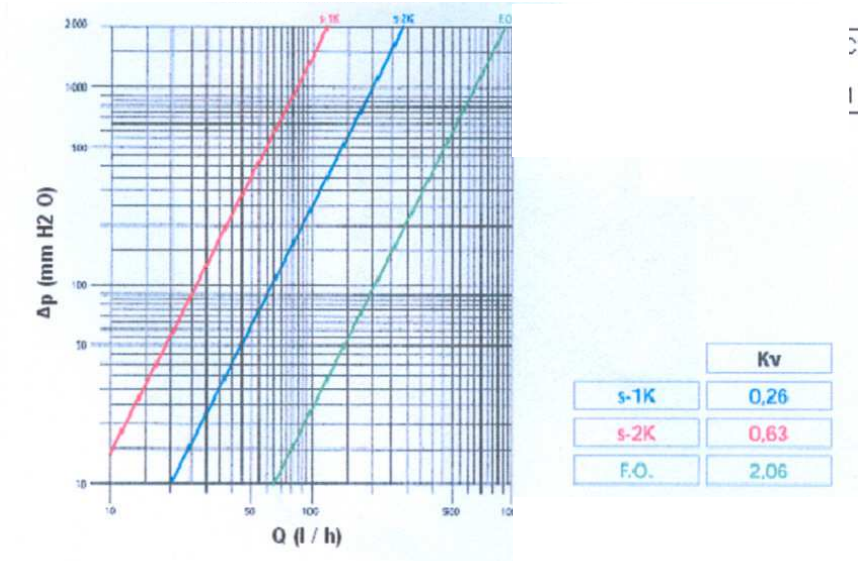
**Fig. no. 1 Regulation valve Bohemia with the thermostatic head**

**Fig. no. 2 Stop valve Bohemia**




The set of retro valves Bohemia (bronze) supply number 15 613

## Flow diagram of the retro valve Bohemia with a thermostatic head



# THE SET OF RETRO VALVE BOHEMIA

**Fig. no. 1 Regulation valve Bohemia**

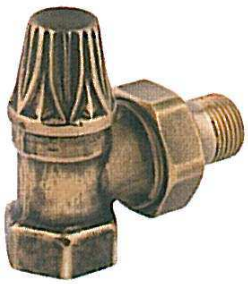


**Fig. no. 2 Stop v alve Bohemia**

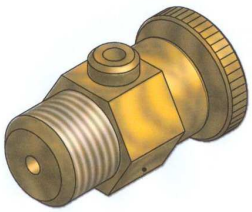
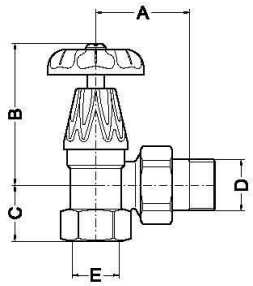


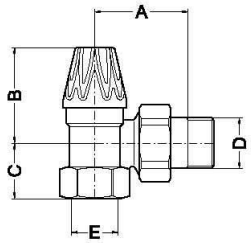
**Fig. no. 3 Bleeder valve Bohemia**

The set of retro valves Bohemia (anthracite):
Stop valve + regulation valve
supply number 14962

The set of retro valves Bohemia (bronze):
Stop valve + regulation valve + bleeder valve
supply number 14963

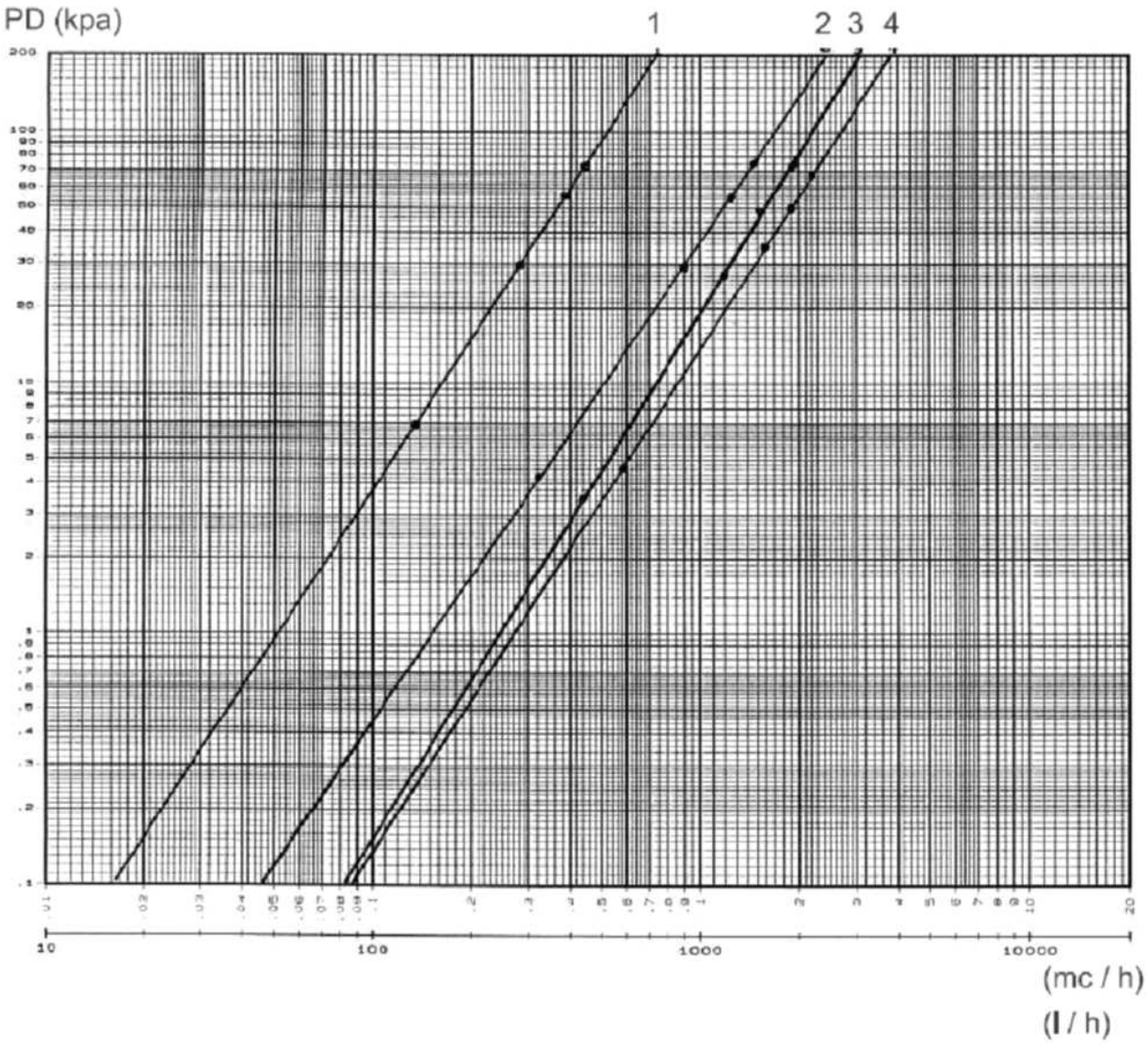



| A | B | C | E |
|---|---|---|---|
| 45 | 72 | 28.5 | 1/2" F |




| D | A | B | C | E |
|---|---|---|---|---|
| 1/2" | 45 | 49 | 28.5 | 1/2" F |

## Flow diagram of the retro valve Bohemia




| | Kv |
|---|---|
| 1 | 0,51 |
| 2 | 1,69 |
| 3 | 2,20 |
| 4 | 2,70 |

# THE SET OF RETRO VALVE WITH A LEVER HEAD

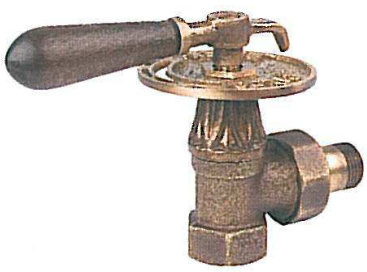


**Fig. no. 1 Lever stop valve**

**Fig. no. 2 Regulation valve**

The set of retro valves with a lever head
supply number 15 713

# TUBOTECH VALVES

**PRESTIGE-MINIMAL 0335 WHEEL ANGLE STELL 1/2" WHITE, CHROMEE**

Order Code: 21 711 white, 21 712 chrome

**PRESTIGE-MINIMAL 0336 WHEEL DIRECT STEEL 1/2" WHITE, CHROMEE**

Order Code: 21 713 white, 21 714 chrome

**PRESTIGE-MINIMAL 0375 CROSS ANGLE STEEL 1/2" WHITE, CHROMEE**

Order Code: 21 715 white, 21 716 chrome

**PRESTIGE-MINIMAL 0376 CROSS DIRECT STEEL1/2" WHITE, CHROMEE**

Order Code: 21 717 white, 21 718 chrome

**PRESTIGE-MINIMAL 0353 SHUT-OFF ANGLE STEEL 1/2" CHROME**

Order Code: 21 719 chrome

**PRESTIGE-MINIMAL 0354 SHUT-OFF DIRECT STEEL1/2" WHITE**

Order Code: 21 720 white

**VICTORIA 0330 ANGLE STEEL 1/2" CHROME**

Order Code: 21 744 chrome

**LIBERTY SET 0320 ANGLE STEEL 1/2" x 3/4" WHITE, BRONZE, CAST IRON**

Order Code: 21 721 white, 21 722 BRONZE, 21 723 CAST IRON

**OLD STYLE SET K367 TERMOSTATIC ANGLE STEEL 1/2" WHITE, BRONZE, CHROME, LIGHT GOLD, GOLD**

Order Code: 21 724 white, 21 725 BRONZE, 21 726 chrome, 21 727 LIGHT GOLD, 21 728 GOLD

**OLD STYLE SET K368 TERMOSTATIC DIRECT STEEL1/2" WHITE, BRONZE, CHROME, LIGHT GOLD, GOLD**

Order Code: 21 729 white, 21 730 BRONZE, 21 731 chrome, 21 732 LIGHT GOLD, 21 733 GOLD

**OLD STYLE SET K337 FLOWER ANGLE STEEL 1/2" WHITE, BRONZE, CHROME, LIGHT GOLD, GOLD**

Order Code: 21 734 white, 21 736 BRONZE, 21 738 chrome, 21 740 LIGHT GOLD, 21 742 GOLD

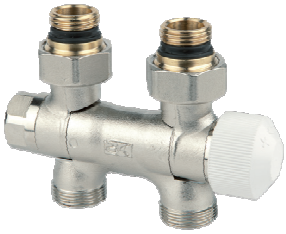
**OLD STYLE SET K338 FLOWER DIRECT STEEL1/2" WHITE, BRONZE, CHROME, LIGHT GOLD, GOLD**

Order Code: 21 735 white, 21 737 BRONZE, 21 739 chrome, 21 741 LIGHT GOLD, 21 743 GOLD

**FREESTYLE 0705 ADJUSTABLE 3/4"F x 3/4"E NICKEL**

Order Code: 21 745

**FREESTYLE 0707 TERMOSTATIC 3/4"F x 3/4"E NICKEL**



Order Code: 21 746

**EXCENTR 10MM 0029 STEEL 1/2"E x 3/4"E NICKEL**

Order Code: 21 747

**SCREW FITTINGS 0281 FOR COPPER PIPES NICKEL**

**SCREW FITTINGS 0381 FOR COPPER PIPES CHROME, BRONZE, GOLD**

**SCREW FITTINGS 0481 FOR COPPER PIPES CHROME, BRONZE, GOLD, LIGHT GOLD**

0281 - Order Code 21 803 NICKEL
0381 - Order Code: 21 790 chrome, 21 791 GOLD, 21 792 BRONZE
0481 - Order Code: 21 793 BRONZE, 21 794 chrome, 21 795 LIGHT GOLD, 21 802 GOLD

**SET ROSETTES AND COVERING TUBES 0491 CHROME, WHITE, GOLD, BRONZE**

Order Code: 21 785 chrome, 21 786 white, 21 787 GOLD, 21788 BRONZE, 21789 LIGHT GOLD

**ADAPTER 0328 FOR COPPER PIPES GOLD, BRONZE**

Order Code: 21 804 GOLD, 21 805 BRONZE