

oventrop

Innovation + Quality

Valves, controls + systems

Products Catalog



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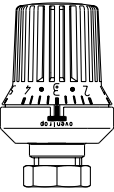
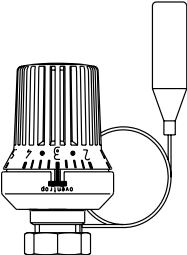
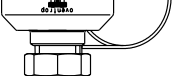
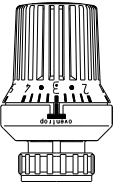
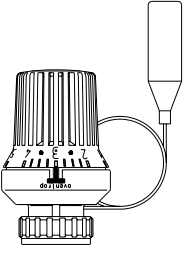
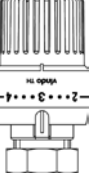

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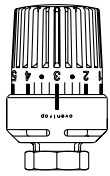
Oventrop's Standard Terms and Conditions of Sale and Warranty apply.

If not stated otherwise, all hydronic parts in this list are suitable for hot water with an operating temperature of up to 240 °F and an operating pressure of up to 50 psi.

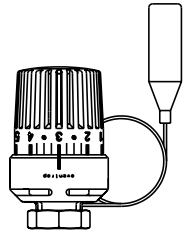
For information on additional items,
please visit our website
www.oventrop-us.com

Upon request, we will gladly investigate availability and pricing of items not mentioned in this book.

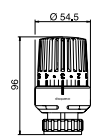
| Item | Box qty. | Item no. | Information |
|---|----------|-----------|---|
|  <p>Thermostat "Uni XH" connection thread M 30x1.5 with liquid sensor white model</p> | (10) | 101 13 65 | <p>These actuators provide a simple means of controlling space temperature by adjusting the flow rate through the heater.</p> <p>Modulating (not on-off) control that enables automatic matching of heat loss.</p> <p>Temperature setting may be limited and set by user. Memory disc to mark favorite setpoint. Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection</p> |
|  <p>white model with remote sensor capillary 6½ feet</p> | (10) | 101 15 65 | <p>Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5</p> |
|  <p>capillary 16 feet</p> | (10) | 101 15 66 | |
|  <p>Thermostat "Uni XD" squeeze connection with liquid sensor white model</p> | (10) | 101 13 75 | <p>These thermostats can be fitted without an adapter to Danfoss valves, series RA (squeeze connection) and Buderus radiators with integrated valve assembly.</p> <p>Squeeze connection with collar nut: easy installation close connection</p> |
|  <p>white model with remote sensor capillary 6½ feet</p> | (10) | 101 15 75 | <p>Temperature setting may be limited and set by user. Memory disc to mark favorite setpoint. Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection</p> <p>Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5</p> |
|  <p>Thermostat "Vindo" connection thread M 30x1.5 with liquid sensor compact white model</p> | (10) | 101 30 66 | <p>Temperature setting may be limited by user through use of hidden limiting guides. Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection</p> <p>Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5</p> |
|  <p>Thermostat "Vindo" squeeze connection with liquid sensor compact white model</p> | (10) | 101 30 76 | <p>These thermostats can be fitted without an adapter to Danfoss valves, series RA (squeeze connection) and Buderus radiators with integrated valve assembly.</p> <p>Same setting features as "Vindo" above.</p> |



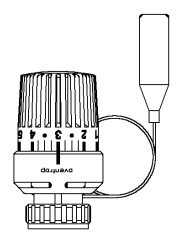
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| Thermostat "Uni LH" connection thread M 30x1.5 with liquid sensor | | | Temperature setting may be limited or locked by use of internal and tamper-resistant limiting guides. Tool is required for limiting and locking. See page 8 for ring loosening tool. Memory disc to mark favorite setpoint. Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection |
| white model | (10) | 101 14 65 | |
| chrome model | (10) | 101 14 69 | |



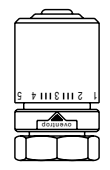
| | | | |
|-----------------------------------|------|-----------|---|
| white model with remote sensor | | | Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5 |
| capillary 6½ feet | (10) | 101 16 65 | |



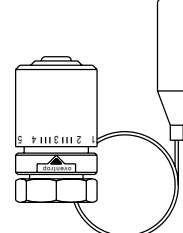
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| Thermostat "Uni LD" squeeze connection with liquid sensor | | | |
| white model | (10) | 101 14 75 | |



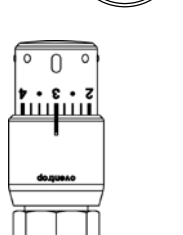
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|-----------------------------------|------|-----------|--|
| white model with remote sensor | | | |
| capillary 6½ feet | (10) | 101 16 85 | |



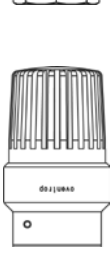
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|--|--|--|--|
| Thermostat "Uni DH" with wax sensor compact model connection thread M 30x1.5 | | | Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection |
|--|--|--|--|



| | | | |
|-------------|------|-----------|---|
| white model | (10) | 101 10 65 | Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5 |
|-------------|------|-----------|---|



| | | | |
|---|--|--|---|
| Thermostat "Uni SH" with liquid sensor connection thread M 30 x 1.5 marking "Uni SH" hidden inside | | | With easy-to-read setting device. Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection |
|---|--|--|---|



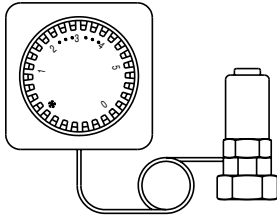
| | | | |
|---------------------------|------|-----------|---|
| white/chrome plated model | (10) | 101 20 65 | Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5 |
| in stainless steel finish | (10) | 101 20 85 | With mounted design cover. |



| | | | |
|---|------|-----------|---|
| Thermostat "Uni LHB" with liquid sensor connection thread M 30 x 1.5 white model | (10) | 101 14 10 | Lockshield configuration with integrated anti-theft device. Increased flexional strength up to 220 lbs. Setting key is required for setting the temperature value. See page 8 for setting tool. |
| | | | Without "0" positive off setting Temperature range 42 - 84 °F |

| Item | Box qty. | Item no. | Information |
|------|----------|----------|-------------|
|------|----------|----------|-------------|

for Oventrop zone/radiator valves
M 30 x 1.5 connection



Thermostat with remote control "Uni FH"
with liquid sensor
connection thread M 30 x 1.5

Wall-mounted thermostats with remote control and remote transmission (for radiators, baseboard, floor heating, fan coils).
Temperature setting may be limited or locked through use of internal limiting guides.
Maximum heating water temperature 248 °F.
"0" setting = positive "off"
"f" setting = freeze protection

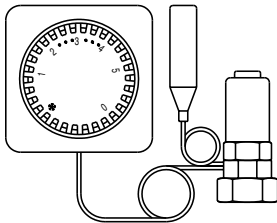
white model

capillary 6½ feet (40) 101 22 95

capillary 16 feet (40) 101 22 96

capillary 33 feet (40) 101 22 97

Temperature range 42 - 84 °F
Markings on the dial 0,f, 1-5

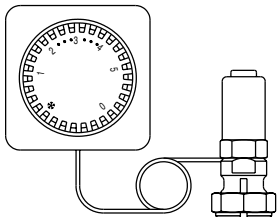


white model
with additional remote sensor

capillary 6½ feet (40) 101 23 95

capillary 16 feet (40) 101 23 96

for Danfoss radiator valves
RA squeeze connection



Thermostat with remote control "Uni FD"
squeeze connection
with liquid sensor

These thermostats can be fitted without an adapter to Danfoss valves, series RA (squeeze connection).

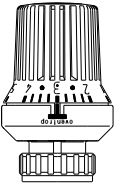
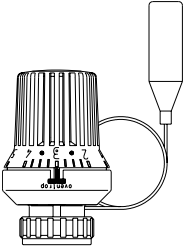
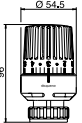
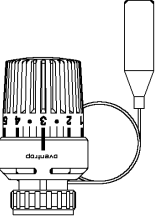
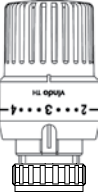
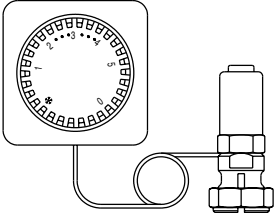
Wall-mounted thermostats with remote control and remote transmission (for radiators, baseboard, floor heating, fan coils).

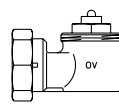
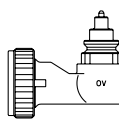
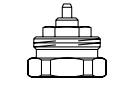
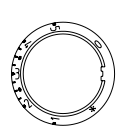

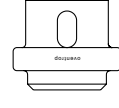
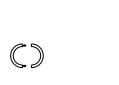
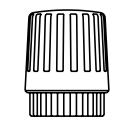
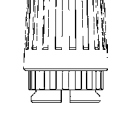
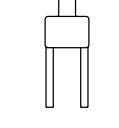

white model

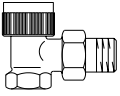
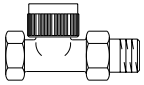

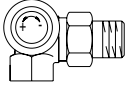
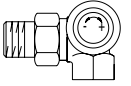
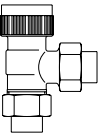


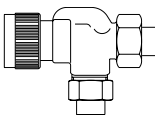
capillary 6½ feet (40) 101 22 75

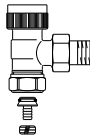


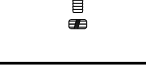
Temperature setting may be limited or locked through use of internal limiting guides.
Maximum heating water temperature 248 °F.
"0" setting = positive "off"
"f" setting = freeze protection

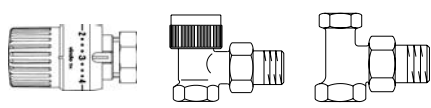
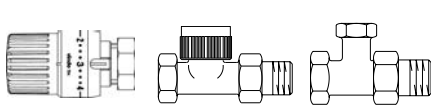
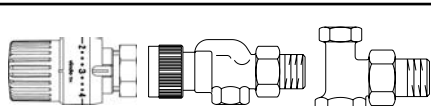
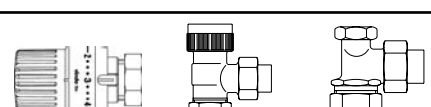
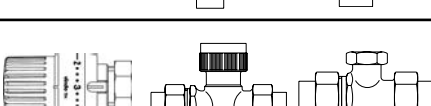
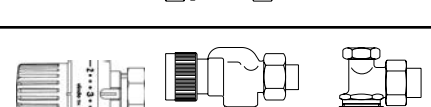
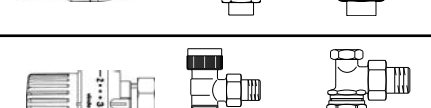
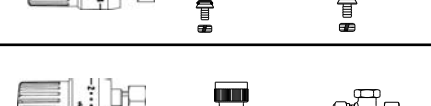
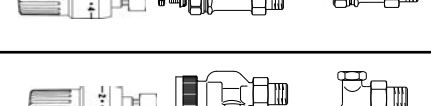
Temperature range 42 - 84 °F
Markings on the dial 0,f, 1-5

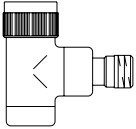
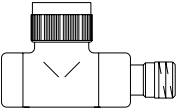

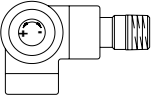

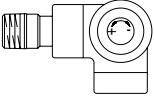



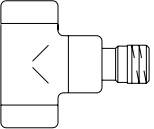
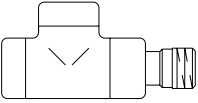

| Item | Box qty. | Item no. | Information | |
|---|--|----------|-------------|--|
|  | <p>Thermostat "Uni XD" squeeze connection with liquid sensor</p> | (50) | 101 13 75 | <p>These thermostats can be fitted without an adapter to Danfoss valves, series RA (squeeze connection) and Buderus radiators with integrated valve assembly.</p> <p>Squeeze connection with collar nut: easy installation close connection</p> |
|  | <p>white model with remote sensor capillary 6½ feet</p> | (10) | 101 15 75 | <p>Temperature setting may be limited and set by user. Memory disc to mark favorite setpoint. Maximum heating water temperature 248 °F.</p> <p>"0" setting = positive "off" "f" setting = freeze protection</p> <p>Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5</p> |
|  | <p>Thermostat "Uni LD" squeeze connection with liquid sensor white model</p> | (10) | 101 14 75 | |
|  | <p>white model with remote sensor capillary 6½ feet</p> | (10) | 101 16 85 | |
|  | <p>Thermostat "Vindo" squeeze connection with liquid sensor Compact</p> | (10) | 101 30 76 | <p>These thermostats can be fitted without an adapter to Danfoss valves, series RA (squeeze connection) and Buderus radiators with integrated valve assembly.</p> <p>Temperature setting may be limited by user through use of hidden limiting guides. Maximum heating water temperature 248 °F.</p> <p>"0" setting = positive "off" "f" setting = freeze protection</p> <p>Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5</p> |
|  | <p>Thermostat with remote control "Uni FD" squeeze connection with liquid sensor</p> | (40) | 101 22 75 | <p>Wall-mounted thermostats with remote control and remote transmission (for radiators, baseboard, floor heating, fan coils). Temperature setting may be limited or locked through use of internal limiting guides. Maximum heating water temperature 248 °F.</p> <p>"0" setting = positive "off" "f" setting = freeze protection</p> <p>Temperature range 42 - 84 °F Markings on the dial 0,f, 1-5</p> |

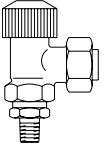
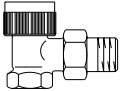
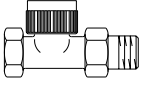
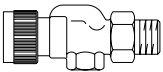
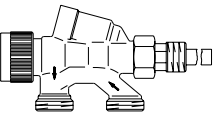
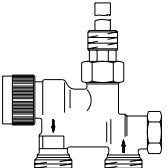
| | Item | Box qty. | Item no. | Information |
|---|--|----------|-----------|---|
|  | Right angle pattern adapter M 30 x 1.5/M 30 x 1.5 white model | (10) | 101 14 50 | For the connection of the thermostats at a right angle. For Oventrop radiator valves with connection M 30 x 1.5. |
|  | Right angle pattern adapter squeeze connection/squeeze connection white model | (10) | 101 14 52 | For Danfoss radiator valves series RA, or for Buderus radiators. |
|  | Thread adapter, nickel plated from M 30 x 1.0 to M 30 x 1.5 | (10) | 101 14 45 | For the conversion of actuator connection thread |
|  | "Uni-Clip" vertical reading adapter ring for "Uni XH" and "Uni XD" thermostats | | | Transposes setting numbers from horizontal to vertical reading. |
| | Thermostat mounted right side | (50) | 101 13 96 | |
| | Thermostat mounted left side | (50) | 101 13 97 | |
|  | Vandal guard for thermostat "Uni XH" white model | (25) | 101 17 66 | |
|  | Vandal guard for thermostat "Uni DH" white model | (10) | 101 19 11 | Prevents unauthorized removal of thermostat. Includes Allen key. Minimum order quantity = 5 |
|  | 2 piece trim ring to hide nickel plated lock nut of "Uni XH" | (50) | 101 13 93 | Minimum order quantity = 5 |
|  | Manual temperature adjuster for all valves with M 30 x 1.5 thread | (10) | 101 25 65 | |
|  | with squeeze connection for Danfoss valves | | 101 25 75 | |
|  | "Uni LH" tool To loosen the graduation cap and clip Bag of 5 pieces | | 198 91 00 | |
|  | "Uni LHB" setting key for lockshield thermostat "Uni LHB" | | 101 14 97 | To set the nominal temperature value for the thermostat. |

| Item | Connection | Box qty. | Item no. | Information |
|--|------------|----------|-----------|--|
| Zone/radiator valves Connection thread M 30 x 1.5 bronze/brass, nickel plated | | | | The Oventrop "Series AZ" radiator valves can be used with four types of actuators: |
| "Series AZ" (for hot water) Threaded valves | | | | 1. Manual adjuster (included) 2. Thermostat (non-electric) 3. Thermostat-remote control (non-electric) 4. 24 V electric for on/off control |
| Angle pattern valve | NPT/NPT | | | All valve inserts are replaceable under working conditions by means of the special tool "Demo-Bloc." Heating system does not need to be drained when using "Demo-Bloc" for removing and replacing valve inserts. |
|  1/2" | | (25) | 188 90 04 | |
| 3/4" | | (25) | 188 90 06 | |
| 1" | | (10) | 188 90 08 | |
| 1 1/4" | | (10) | 188 90 10 | |
| Straight pattern valve | NPT/NPT | | | |
|  1/2" | | (25) | 188 91 04 | |
| 3/4" | | (25) | 188 91 06 | |
| 1" | | (10) | 188 91 08 | |
| 1 1/4" | | (10) | 188 91 10 | |
| Reversed angle pattern valve | NPT/NPT | | | |
|  1/2" | | (25) | 188 92 04 | |
| 3/4" | | (25) | 188 92 06 | |
| Double angle pattern valve 1/2" left hand side connection | NPT/NPT | | | |
|  1/2" | | (25) | 169 40 62 | |
| Double angle pattern valve 1/2" right hand side connection | NPT/NPT | | | |
|  1/2" | | (25) | 169 40 63 | |
| "Series AZ" (for hot water) Sweat valves | | | | |
| Angle pattern valve | SWT/SWT | | | Includes (2) unions and sweat tails. |
|  1/2" | | (25) | 169 44 04 | |
| 3/4" | | (25) | 169 44 06 | |
| Straight pattern valve | SWT/SWT | | | |
|  1/2" | | (25) | 169 44 14 | |
| 3/4" | | (25) | 169 44 16 | |
| Reversed angle pattern valve | SWT/SWT | | | |
|  1/2" | | (25) | 169 44 24 | |
| 3/4" | | (25) | 169 44 26 | |
|  | | | | |

| Item | Connection | Box qty. | Item no. | Information |
|--|------------|----------|-----------|---|
|  <p>“Series AZ” (for hot water) Connection thread M 30 x 1.5 bronze/brass, nickel plated PEX valves</p> | | | | PEX connection on inlet to radiator valve. The Oventrop “Series AZ” radiator valves can be used with four types of actuators: |
|  <p>Angle pattern valve 1/2"</p> | PEX/NPT | (25) | 169 66 04 | <ol style="list-style-type: none"> 1. Manual adjuster (included) 2. Thermostat (non-electric) 3. Thermostat-remote control (non-electric) 4. 24 V electric for on/off control |
|  <p>Straight pattern valve 1/2"</p> | PEX/NPT | (25) | 169 66 14 | All valve inserts are replaceable under working conditions by means of the special tool "Demo-Bloc." |
|  <p>Reversed angle pattern valve 1/2"</p> | PEX/NPT | (25) | 169 66 24 | |

| | |
|---|--|
|  | <p>1 - Thermostatic radiator valve package with NPT threaded connection for 1/2" pipe, consisting of thermostat 101 30 66, angle pattern valve 188 90 04, and angle pattern lockshield balancing valve 109 10 82 Item Number 188 90 04K</p> |
|  | <p>2 - Thermostatic radiator valve package with NPT threaded connection for 1/2" pipe, consisting of thermostat 101 30 66, angle pattern valve 188 92 04, and angle pattern lockshield balancing valve 109 10 82 Item Number 188 92 04K</p> |
|  | <p>3 - Thermostatic radiator valve package with NPT threaded connection for 1/2" pipe, consisting of thermostat 101 30 66, straight pattern valve 188 91 04, and straight pattern lockshield balancing valve 109 11 82 Item Number 188 91 04K</p> |
|  | <p>4 - Thermostatic radiator valve package with solder connection for 1/2" copper pipe, consisting of thermostat 101 30 66, angle pattern valve 169 44 04, and angle pattern lockshield balancing valve 109 10 92 Item Number 169 44 04K</p> |
|  | <p>5 - Thermostatic radiator valve package with solder connection for 1/2" copper pipe, consisting of thermostat 101 30 66, reversed angle pattern valve 169 44 24, and angle pattern lockshield balancing valve 109 10 92 Item Number 169 44 24K</p> |
|  | <p>6 - Thermostatic radiator valve package with solder connection for 1/2" copper pipe, consisting of thermostat 101 30 66, straight pattern valve 169 44 14, and straight pattern lockshield balancing valve 109 11 92 Item Number 169 44 14K</p> |
|  | <p>7 - Thermostatic radiator valve package with compression connection for 1/2" PEX pipe, consisting of thermostat 101 30 66, angle pattern valve 169 66 04, and angle pattern lockshield balancing valve 109 10 52 Item Number 169 66 04K</p> |
|  | <p>8 - Thermostatic radiator valve package with compression connection for 1/2" PEX pipe, consisting of thermostat 101 30 66, reversed angle pattern valve 169 66 24, and angle pattern lockshield balancing valve 109 10 52 Item Number 169 66 24K</p> |
|  | <p>9 - Thermostatic radiator valve package with compression connection for 1/2" PEX pipe, consisting of thermostat 101 30 66, straight pattern valve 169 66 14, and straight pattern lockshield balancing valve 109 11 52 Item Number 169 66 14K</p> |

| Item | Connection | Box qty. | Item no. | Information |
|---|---|----------|------------------------|---|
| Radiator valves "Series E" Connection thread M 30 x 1.5 | | | | |
|  | Angle pattern valve 1/2" chrome plated 1/2" white powder coated | BSP | 116 30 52 116 30 62 | Designer series for use with towel racks or panel radiators. Includes valve insert AD6 (6 flow presettings). Gold plated or anthracite models upon request. |
|  | Straight pattern valve 1/2" chrome plated 1/2" white powder coated | BSP | 116 31 52 116 31 62 | Awards:  Design Award of North Rhine Westphalia, Award of Honour for Industrial Products |
|  | Double angle pattern valve left hand side connection 1/2" chrome plated 1/2" white powder coated | BSP | 116 34 52 116 34 62 |  Industrial Design Forum Hannover Award iF |
|  | Double angle pattern valve right hand side connection 1/2" chrome plated 1/2" white powder coated | BSP | 116 34 53 116 34 63 |  Design Innovation of DesignCentre Essen Award for High Quality of Design  Pragothem, Prague  German Institute for Copper Berlin Award "Product and Brass" |
| Service valve "Combi E" | | | | |
|  | Service valve "Combi E" Angle pattern 1/2" chrome plated 1/2" white powder coated | BSP | 116 60 52 116 60 62 | Normally used on return side of radiator or towel rack. Allows isolation, balancing with fill and drain capability. |
|  | Service valve "Combi E" Straight pattern 1/2" chrome plated 1/2" white powder coated | BSP | 116 70 52 116 70 62 | |
|  | Thermostat "Uni SH" with liquid sensor connection thread M 30 x 1.5 marking "Uni SH" hidden inside | | | With easy-to-read setting device. Maximum heating water temperature 248 °F. "0" setting = positive "off" "f" setting = freeze protection |
| | white/chrome plated model | (10) | 101 20 65 | Temperature range 42 - 84 °F Markings on the dial 0, f, 1-5 |
| | stainless steel finish | (10) | 101 20 85 | With mounted design cover. |

| Item | Connection | Box qty. | Item no. | Information | |
|---|--|----------|-----------|--|-----------|
| <p>“Series S” (for low pressure steam, max.15 psi) Steam radiator valve Threaded valves</p> | | | | | |
|  | One-pipe steam radiator valve 1/8" | NPT | (25) | 188 85 51 | |
|  | Angle pattern valve 1/2" | NPT/NPT | (25) | <p>The Oventrop “Series S” radiator valves can be used with four types of actuators:</p> <ol style="list-style-type: none"> 1. Manual adjuster (included) 2. Thermostat (non-electric) 3. Thermostat-remote control (non-electric) 4. 24 V electric for on/off control | |
| | 3/4" | | (25) | | 189 90 06 |
| | 1" | | (25) | | 189 90 08 |
| | 1 1/4" | | (25) | | 189 90 10 |
|  | Straight pattern valve 1/2" | NPT/NPT | (25) | <p>All valve inserts are replaceable under working conditions by means of the special tool “Demo-Bloc”. Heating system does not need to be drained when using “Demo-Bloc” for removing and replacing valve inserts.</p> | |
| | 3/4" | | (25) | | 189 91 06 |
| | 1" | | (25) | | 189 91 08 |
| | 1 1/4" | | (25) | | 189 91 10 |
|  | Reversed angle pattern valve 1/2" | NPT/NPT | (25) | 189 92 04 | |
| | 3/4" | | (25) | | 189 92 06 |
|  | One-pipe radiator injection valves with constant bypass and shut off | | | <p>The minimum bypass of the one-pipe radiator injection valves is 35%. Bypass cannot be closed.</p> | |
| | Connections 1/2" to radiator 3/4" (Euroconus) to system | | | <p>The insertion tube is 6" long, has a diameter of 7/16" and the distance between pipe centers is 2 inches.</p> | |
| | with horizontal insertion tube | | 118 35 61 | | |
|  | with vertical insertion tube | | 118 35 71 | <p>The one-pipe radiator injection valve with vertical insertion tube is especially suitable for towel radiators. (The technical instructions of the radiator manufacturers need to be observed.)</p> | |

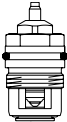
| Item | 4°F Cv | Item no. | Information |
|------|--------|----------|-------------|
|------|--------|----------|-------------|

Valve inserts for all valves M 30 x 1.5, excluding 101 70 60 Standard with Oventrop zone/radiator valves



Valve insert "Series AZ" 1.28 118 70 60 M 30 x 1.5 highest Cv.

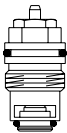
Valve insert "Series AZ" M 30 x 1.0 101 70 60



Valve insert "Series AV 6" with presetting 0.75 118 70 57 Adjustable Cv valve insert, allows technician to balance flow rate. Six different settings. Use key for setting adjustment no. 118 39 61



Valve insert "Series ADV 6" "Landlord model" 0.75 118 60 01 Same as "Series AV 6", but with additional feature that, if thermostat is removed, flow will be restricted to 5% of normal flow. Use key for setting adjustment no. 118 39 61



Valve insert "Series S" Valve insert with stainless steel seat 0.70 118 62 00 Steam specialty insert for steam systems.



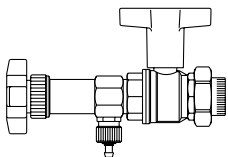
Special valve insert 0.52 118 70 70 Low Cv to correct reversed supply/return hookup.



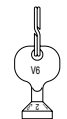
Valve insert "series KT" 0.58 114 71 69 Opens valve upon rising temperature.



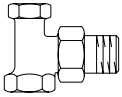
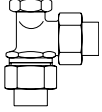
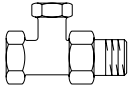
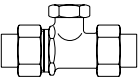
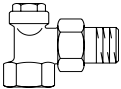
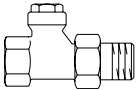
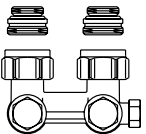
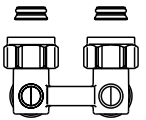



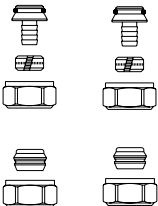
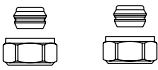
Valve insert "Series TM" 106 70 85 Insert for pressure differential of up to 40 psi (for commercial baseboard, etc.).
 1/2" 1.1
 3/4" 1.2
 1" 1.3
 1 1/4" 1.6

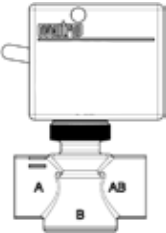
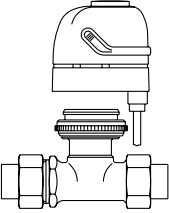
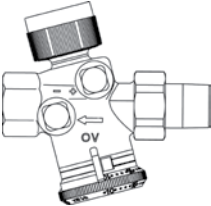





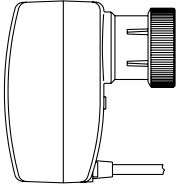
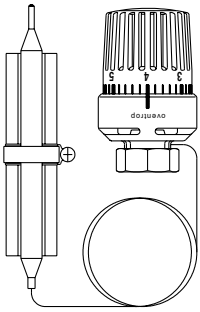
"Demo-Bloc" Special tool for replacing Oventrop valve inserts under working conditions for both M 30 x 1.0 and M 30 x 1.5 thread connections 118 80 51

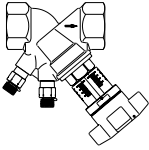
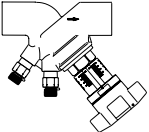
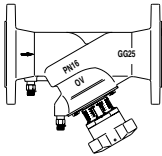
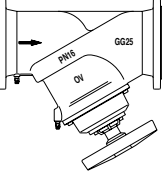


Key for flow rate setting on AV 6 / ADV 6 inserts 118 39 61

| Item | Connection | Box qty. | Item no. | Information |
|---|---|----------|-----------|---|
|  | Service valve "Combi 2" balancing, shut-off Angle pattern brass model, nickel plated 1/2", NPT/NPT | (100) | 109 10 82 | Used on the return side of radiators, base-board or convectors to provide balancing and shut-off capability. Use 6 mm Allen key. All lockshield valves are suitable for use on copper pipes. |
| | 3/4", NPT/NPT | | 109 10 83 | |
|  | 1/2", sweat/sweat | (100) | 109 10 92 | Sweat connection includes (2) unions and sweat tails. |
|  | Straight pattern brass model, nickel plated 1/2", NPT/NPT | (100) | 109 11 82 | |
| | 3/4", NPT/NPT | (25) | 109 11 83 | |
|  | 1/2", sweat/sweat | (100) | 109 11 92 | Sweat connection includes (2) unions and sweat tails. |
|  | Service valve "Combi 4" balancing with memory position, shut-off, filling and draining Angle pattern brass model, nickel plated 1/2", NPT/NPT | | 109 06 82 | Used on the return side of radiators, base-board or convectors to provide balancing with memory stop and shut-off capability. Use 6 mm Allen key. All lockshield valves are suitable for use on copper pipes. |
| | 3/4", NPT/NPT | | 109 06 83 | |
|  | Straight pattern, NPT/NPT brass model, nickel plated 1/2", NPT/NPT | | 109 07 82 | |
| | 3/4", NPT/NPT | | 109 07 83 | |
|  | "Multiflex" fittings for panel radiators with bottom tapings and built-in valve assembly (such as Buderus, DiaNorm) Preset isolation and diverting valves for one-pipe systems | | | "Multiflex" fittings are used for radiators with integrated distributors for one and two-pipe systems. "Euroconus" compression fitting required to connect for piping (see below). |
|  | 1/2" angle pattern | (10) | 101 59 34 | Diverting "Multiflex" can be used for two-pipe systems or for one-pipe series loop systems, valve allows setting of flow to next radiators in loop. Preset to one pipe operation for radiator share at 35%. |
| | 1/2" straight pattern | (10) | 101 59 33 | |
|  | 2-pipe isolating valve 1/2" angle pattern | | 101 58 14 | Isolating "Multiflex" is used for two-pipe systems. |
| | 1/2" straight pattern | | 101 58 13 | |
|  | 2-pipe isolating valve for reversed connection 1/2" angle pattern | | 101 64 63 | For use with compression fittings. |
| | 1/2" straight pattern | | 101 63 63 | |
|  | Adapter from 1/2" female to 3/4" male (Euroconus) nipple, unplated one port self sealing | (10) | 102 82 53 | |
|  | "Euroconus" Compression fittings for stainless steel manifolds, "Unibox", panel radiators, etc. US-PEX 3/8" | (100) | 164 68 49 | All "Euroconus" sold in pairs. "Euroconus" compression fitting required for pipe connection to "Multiflex" (above). |
| | US-PEX 1/2" | (100) | 164 68 50 | |
| | US-PEX 5/8" | (100) | 164 68 51 | |
|  | Copper 1/2", with soft sealing rubber fitting | (100) | 101 68 44 | |
| | Copper 1/2", with brass compression fitting | (100) | 101 68 64 | |

| Item | Connection | Box qty. | Item no. | Information | |
|--|----------------------|---------------|---------------|--|---|
|  <p>Two-way zone valve 24V actuator two-wire</p> | 3/4" | | 168 07 52 | The two-way valve with actuator is used for on/off control for chilled and hot water systems. The actuator is driven by an unilateral motor with spring return. Bronze body. Cv 3.3 | |
| | 3/4" | | 168 07 06 | | Lever opening arm. |
|  <p>Zone/radiator valve Two-way straight pattern valve 24V</p> | 3/4" normally closed | (25) | 169 44 16 ZV | The two-way valve with actuator is used for on/off control for chilled and hot water systems. Bronze body, nickel plated, 24V. Choose normally closed ZV (four-wire) or normally open ZVO (two-wire) | |
| | 3/4" normally open | (25) | 169 44 16 ZVO | | ZV includes (1) #101 24 96 electrothermal actuator LH, normally closed, 2 Watt, with end switch. ZVO includes (1) #101 24 86 electrothermal actuator, normally open. |
|  <p>Regulating valve "Cocon Q" Two-way control valve Pressure independent with test points</p> | 1/2" | 0.6 - 4.6 GPM | NPT/NPT | The "Cocon Q" is a pressure independent balance valve for proportional flow or on/off control for chilled and hot water systems. Actuator connection M30 x 1.5 Sold without actuator. Minimum 5 psi pressure drop required. | |
| | 3/4" | 0.6 - 4.6 GPM | NPT/NPT | | 167 62 04 |
| | without test points | | | | 167 60 06 |
| | 1/2" | 0.6 - 4.6 GPM | NPT/NPT | | 167 57 04 |
| | 3/4" | 0.6 - 4.6 GPM | NPT/NPT | 167 55 06 | |

| Item | Connection | Box qty. | Item no. | Information | |
|---|--|-----------|----------|-------------|---|
| Control actuators | | | | | |
| Control actuators control the flow and temperature and can be used with conventional radiators, manifolds for under-floor heating systems, radiant and chilled ceiling systems and fan coil units. The actuators are protected against overvoltage. | | | | | |
|  | Electrothermal actuator (LH) 24 V, power "off", normally closed two-wire with end switch | M30 x 1.5 | (100) | 101 24 96 | Compact design. For floor heat manifolds and zone valves. |
| | 24 V, power "off", normally closed two-wire only | M30 x 1.5 | | 101 28 16 | End switch can be used to start a pump through a relay. Cable 32" (4 wires). |
| | 24V, power "off", normally open two-wire only | M30 x 1.5 | | 101 28 26 | Slow acting to prevent water hammer. |
|  | Adapter for electrothermal actuator (LH) for connection to M30x1.0 threaded valves | | | 101 28 90 | |
|  | Electrothermal actuator 0-10V for temperature mixing or proportional flow normally closed with linear characteristic | M30 x 1.5 | | 101 29 52 | For three-way valves and two-way control valve |
|  | Electromotive actuator 0-10V, with switchable characteristic | M30 x 1.5 | | 101 27 05 | For three-way valves and two-way control valve |
| | Electromotive actuator 24V, 3-point floating | M30 x 1.5 | | 101 27 08 | |
|  | Non-electric actuator with strap-on sensor and transfer unit | | | | |
| | 20 – 50 °C (68 – 122 °F) | M30 x 1.5 | (10) | 114 28 61 | Thermostatic operator for controlling supply or return water temperature. |
| | 30 – 60 °C (86 – 140 °F) | M30 x 1.5 | (10) | 114 28 62 | Applications include maintaining a minimum return temperature to a boiler, and mixing temperature for low and medium temperature emitters such as for radiant panels and radiant floor heating. |
| | 40 – 70 °C (104 – 158 °F) | M30 x 1.5 | (10) | 114 28 63 | |
| | 50 – 80 °C (122 – 176 °F) | M30 x 1.5 | (10) | 114 28 64 | |
| M30x1.5 connection. | | | | | |
| Capillary length 6½ ft. | | | | | |

| Item | Connection | Item no. | Information | |
|---|---|-----------------|-------------|--|
| Bronze balancing valve with NPT female thread | | | | |
|  | DN15 1/2" | NPT/NPT | 106 10 04 | |
| | DN20 3/4" | NPT/NPT | 106 10 06 | |
| | DN25 1" | NPT/NPT | 106 10 08 | |
| | DN32 1 1/4" | NPT/NPT | 106 10 10 | |
| | DN40 1 1/2" | NPT/NPT | 106 10 12 | |
| | DN50 2" | NPT/NPT | 106 10 16 | |
| Bronze balancing valve with solder connection | | | | |
|  | DN15 1/2" | sweat x sweat | 106 05 51 | |
| | DN20 3/4" | sweat x sweat | 106 05 52 | |
| | DN25 1" | sweat x sweat | 106 05 53 | |
| | DN32 1 1/4" | sweat x sweat | 106 05 54 | |
| | DN40 1 1/2" | sweat x sweat | 106 05 55 | |
| | DN50 2" | sweat x sweat | 106 05 56 | |
| Flanged cast iron balancing valve (ANSI) | | | | |
|  | DN20 3/4" | flange x flange | 106 29 46 | |
| | DN25 1" | flange x flange | 106 29 47 | |
| | DN32 1 1/4" | flange x flange | 106 29 48 | |
| | DN40 1 1/2" | flange x flange | 106 29 49 | |
| | DN50 2" | flange x flange | 106 29 50 | |
| | DN65 2 1/2" | flange x flange | 106 29 51 | |
| | DN80 3" | flange x flange | 106 29 52 | |
| | DN100 4" | flange x flange | 106 29 53 | |
| | DN125 5" | flange x flange | 106 29 54 | |
| | DN150 6" | flange x flange | 106 29 55 | |
| | DN200 8" | flange x flange | 106 29 56 | |
| | DN250 10" | flange x flange | 106 29 57 | |
| | DN300 12" | flange x flange | 106 29 58 | |
| | DN350 14" | flange x flange | 106 29 59 | |
|  | Cast iron balancing valve with groove connection | | | |
| | DN65 2 1/2" | groove x groove | 106 30 51 | |
| | DN80 3" | groove x groove | 106 30 52 | |
| | DN100 4" | groove x groove | 106 30 53 | |
| | DN125 5" | groove x groove | 106 30 54 | |
| | DN150 6" | groove x groove | 106 30 55 | |
| | DN200 8" | groove x groove | 106 30 56 | |
| DN250 10" | groove x groove | 106 30 57 | | |
| DN300 12" | groove x groove | 106 30 58 | | |

"Hydrocontrol" calibrated manual balancing valves have a multi-turn handle for presetting and memory stop.

"Hydrocontrol" models all include de-zincification resistant brass on the stem and trim, maintenance free double O-ring seal, PTFE stem seat, and a lockable presetting.

| Item | Description | Item no. | Information |
|------|-------------|----------|-------------|
|------|-------------|----------|-------------|

“Hydrocontrol-R” Coil Hookup Kit*

*Connections must be specified at time of order. See below.

| | | |
|------|--------|-----------|
| DN15 | 1/2" | 166 10 04 |
| DN20 | 3/4" | 166 10 06 |
| DN25 | 1" | 166 10 08 |
| DN32 | 1 1/4" | 166 10 10 |
| DN40 | 1 1/2" | 166 10 12 |
| DN50 | 2" | 166 10 16 |

Specifying connections for the coil kit, **F** = FNPT, **M** = MNPT, **S** = SWT.
The first letter designates the fixed-end connection. The second letter designates the union-end connection.

Each size is available in the connections below.

| | | | | | |
|----|-----------------|-----|----|-----------------|-----|
| FF | Balancing valve | FxF | SF | Balancing valve | SxS |
| | Y-strainer | FxF | | Y-strainer | SxF |
| | Union fitting | FxF | | Union fitting | SxF |
| FM | Balancing valve | FxF | SM | Balancing valve | SxS |
| | Y-strainer | FxM | | Y-strainer | SxM |
| | Union fitting | FxM | | Union fitting | SxM |
| FS | Balancing valve | FxF | SS | Balancing valve | SxS |
| | Y-strainer | FxS | | Y-strainer | SxS |
| | Union fitting | FxS | | Union fitting | SxS |

“Hydrocontrol” calibrated manual balancing valves have a multi-turn handle, for presetting and memory stop.

All “Hydrocontrol” models include de-zincification resistant brass on the stem and trim, maintenance free double O-ring seal, PTFE stem seat, and a lockable presetting.

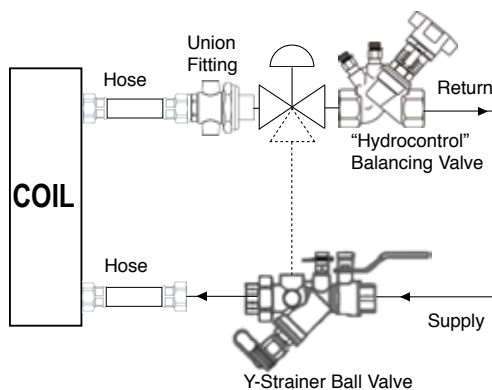
The Oventrop strainer coil kit is an assembly for the supply side of a fan coil unit or air handler. Each assembly consists of a Y-strainer, ball valve, PT port, and drain. A union connection at the strainer is male, female, or sweat. A sweat or female connection is available on the ball valve end.

Oblique pattern strainer for vertical and horizontal installation. Bronze body, with wire basket made of stainless steel.

Oventrop union for the return side of a fan coil unit or air handler. The fixed connection of the union is female or sweat. The union connection is available on the control valve side.

Union made of forged brass, O-ring seal for union. The union has an airvent and a pressure test point.

“Hydrocontrol-R” Coil Hookup Kit

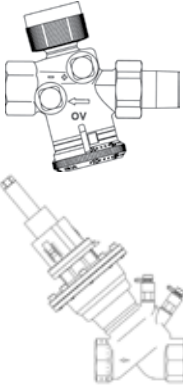
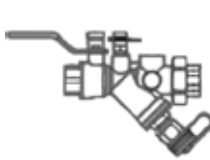





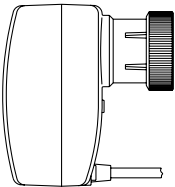
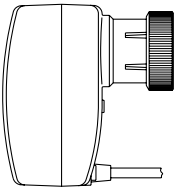
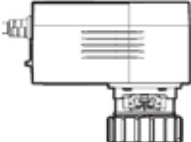


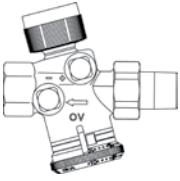
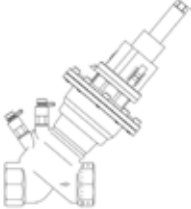
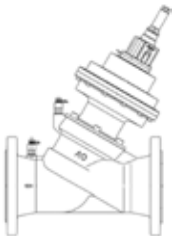


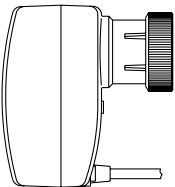
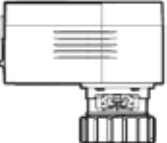
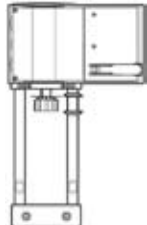
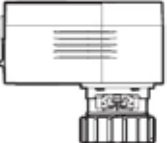
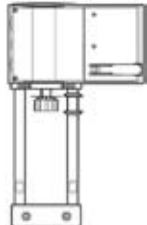
Stainless Steel Flex Hoses for Coil Hookup Kit


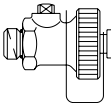
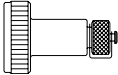
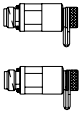
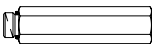
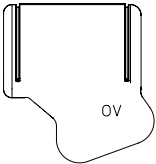
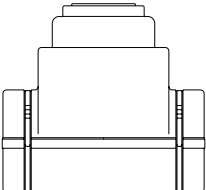
| | | | |
|------|--------|-------------------------|--------------|
| DN15 | 1/2" | 18" Length, Single hose | 106 10 15-18 |
| DN20 | 3/4" | 18" Length, Single hose | 106 10 20-18 |
| DN25 | 1" | 18" Length, Single hose | 106 10 25-18 |
| DN32 | 1 1/4" | 18" Length, Single hose | 106 10 32-18 |
| DN40 | 1 1/2" | 18" Length, Single hose | 106 10 40-18 |
| DN50 | 2" | 18" Length, Single hose | 106 10 50-18 |
| DN15 | 1/2" | 24" Length, Single hose | 106 10 15-24 |
| DN20 | 3/4" | 24" Length, Single hose | 106 10 20-24 |
| DN25 | 1" | 24" Length, Single hose | 106 10 25-24 |
| DN32 | 1 1/4" | 24" Length, Single hose | 106 10 32-24 |
| DN40 | 1 1/2" | 24" Length, Single hose | 106 10 40-24 |
| DN50 | 2" | 24" Length, Single hose | 106 10 50-24 |
| DN15 | 1/2" | 30" Length, Single hose | 106 10 15-30 |
| DN20 | 3/4" | 30" Length, Single hose | 106 10 20-30 |
| DN25 | 1" | 30" Length, Single hose | 106 10 25-30 |
| DN32 | 1 1/4" | 30" Length, Single hose | 106 10 32-30 |
| DN40 | 1 1/2" | 30" Length, Single hose | 106 10 40-30 |
| DN50 | 2" | 30" Length, Single hose | 106 10 50-30 |

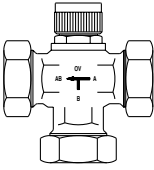
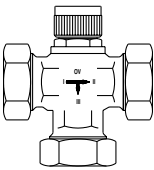
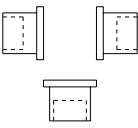
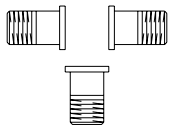
Hose connection is FNPT union x MNPT

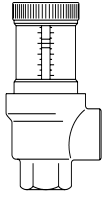
| Item | Description | Item no. | Information | |
|--------------------------------------|---------------|-----------|---|---|
| “Hydrocontrol” Y-Strainer Ball Valve | | | | |
| DN15 | ½” FNPTxFNPT | 166 80 01 | The Oventrop strainer coil kit is an assembly for the supply side of a fan coil unit or air handler. Each assembly consists of a Y-strainer, a ball valve, a PT port, and a drain. A union connection at the strainer is male, female, or sweat. A sweat or female connection is available on the ball valve end. | |
| DN20 | ¾” FNPTxFNPT | 166 80 03 | | |
| DN25 | 1” FNPTxFNPT | 166 80 05 | | |
| DN32 | 1¼” FNPTxFNPT | 166 80 07 | | |
| DN40 | 1½” FNPTxFNPT | 166 80 09 | | |
| DN50 | 2” FNPTxFNPT | 166 80 11 | | |
| DN15 | ½” SWTxSWT | 166 81 02 | | Oblique pattern strainer for vertical and horizontal installation. Bronze body, with wire basket made of stainless steel. |
| DN20 | ¾” SWTxSWT | 166 81 04 | | |
| DN25 | 1” SWTxSWT | 166 81 06 | | |
| DN32 | 1¼” SWTxSWT | 166 81 08 | | |
| DN40 | 1½” SWTxSWT | 166 81 10 | | |
| DN50 | 2” SWTxSWT | 166 81 14 | | |
| DN15 | ½” FNPTxSWT | 166 81 01 | | |
| DN20 | ¾” FNPTxSWT | 166 81 03 | | |
| DN25 | 1” FNPTxSWT | 166 81 05 | | |
| DN32 | 1¼” FNPTxSWT | 166 81 07 | | |
| DN40 | 1½” FNPTxSWT | 166 81 09 | | |
| DN50 | 2” FNPTxSWT | 166 81 11 | | |
| DN15 | ½” SWTxFNPT | 166 80 02 | | |
| DN20 | ¾” SWTxFNPT | 166 80 04 | | |
| DN25 | 1” SWTxFNPT | 166 80 06 | | |
| DN32 | 1¼” SWTxFNPT | 166 80 08 | | |
| DN40 | 1½” SWTxFNPT | 166 80 10 | | |
| DN50 | 2” SWTxFNPT | 166 80 12 | | |
| DN15 | ½” SWTxMNPT | 166 82 02 | | |
| DN20 | ¾” SWTxMNPT | 166 82 04 | | |
| DN25 | 1” SWTxMNPT | 166 82 06 | | |
| DN32 | 1¼” SWTxMNPT | 166 82 08 | | |
| DN40 | 1½” SWTxMNPT | 166 82 10 | | |
| DN50 | 2” SWTxMNPT | 166 82 12 | | |
| DN15 | ½” FNPTxMNPT | 166 82 01 | | |
| DN20 | ¾” FNPTxMNPT | 166 82 03 | | |
| DN25 | 1” FNPTxMNPT | 166 82 05 | | |
| DN32 | 1¼” FNPTxMNPT | 166 82 07 | | |
| DN40 | 1½” FNPTxMNPT | 166 82 09 | | |
| DN50 | 2” FNPTxMNPT | 166 82 11 | | |

| Item | Description | Item no. | Information |
|---|--|---|--|
|  | Regulating valve “Cocon Q” basic hookup set Two-way control valve and Y-strainer ball valve Pressure independent with test points ½” 0.6 - 4.6 GPM, MNPT/FNPT ¾” LF 0.6 - 4.6 GPM, MNPT/FNPT ¾” 0.8 - 5.7 GPM, MNPT/FNPT 1” 1.3 - 8.8 GPM, MNPT/FNPT 1¼” 2.6 - 15.8 GPM, MNPT/FNPT | 167 82 04 167 80 06 167 81 06 167 81 08 167 81 10 | The “Cocon Q” is a pressure independent balance valve for proportional flow or on/off control for chilled and hot water systems. Actuator connection M30 x 1.5 Sold without actuator. |
|  | 1½” 6.3 - 33 GPM, FNPT/FNPT 2” 11 - 44 GPM, FNPT/FNPT | 166 81 12 166 81 16 | |
|  | Regulating valve “Cocon Q” fan coil hookup kit ½” 0.6 - 4.6 GPM, SWT/MNPT ¾” LF 0.6 - 4.6 GPM, SWT/MNPT ¾” 0.8 - 5.7 GPM, SWT/MNPT 1” 1.3 - 8.8 GPM, SWT/MNPT 1¼” 2.6 - 15.8 GPM, SWT/MNPT | 167 90 04 167 90 06 167 91 06 167 90 08 167 90 10 | The “Cocon Q” fan coil hookup kit is a packaged solution, incorporating ball valves, a PI control valve, Venturi test ports, and a Y-strainer with drain valve. Actuator connection M30 x 1.5 Sold without actuator. |
|  | Electrothermal actuator 24 V, power “off”, normally closed, M30 x 1.5 four-wire with end switch | 101 24 96 | For use with sizes ½” and ¾” LF Compact design. |
|  | 24 V, power “off”, normally closed, M30 x 1.5 two-wire only | 101 28 16 | End switch can be used to start a pump through a relay. Cable 32” (4 wires). |
|  | 24V, power “off”, normally open, M30 x 1.5 two-wire only | 101 28 26 | Actuation time: 3 minute full stroke |
|  | Electrothermal actuator 0-10V for temperature mixing, M30 x 1.5 or proportional flow normally closed | 101 29 52 | |
|  | Electromotive actuator 0-10V, with switchable characteristic, M30 x 1.5 | 101 27 05 | For use with sizes ½” through 1¼” |
|  | Electromotive actuator 24V, 3-point floating, M30 x 1.5 | 101 27 08 | |
|  | Electromotive actuator, 24V 0-10V, or switching as 2 or 3 point floating control, Squeeze type | 115 80 10 | For use with sizes ½” and 2” Actuator characteristic switchable: Linear, equal percentage, or x ² |

| Item | Description | Item no. | Information |
|---|--|-----------|--|
|  | Regulating valve "Cocon Q" | | <p>The "Cocon Q" is a pressure independent balance valve for proportional flow or on/off control for chilled and hot water systems.</p> <p>Actuator connection M30 x 1.5</p> <p>Sold without actuator.</p> |
| | Two-way control valve | | |
| | Pressure independent with test points | | |
| | ½" 0.6 - 4.6 GPM, MNPT/FNPT | 167 62 04 | |
| | ¾" LF 0.6 - 4.6 GPM, MNPT/FNPT | 167 60 06 | |
| | ¾" 0.8 - 5.7 GPM, MNPT/FNPT | 167 61 06 | |
| 1" 1.3 - 8.8 GPM, MNPT/FNPT | 167 61 08 | | |
| 1¼" 2.6 - 15.8 GPM, MNPT/FNPT | 167 61 10 | | |
|  | Regulating valve "Cocon Q" | | |
| | Two-way control valve | | |
| | Pressure independent with test points | | |
| 1½" 6.6 - 33 GPM, FNPT/FNPT | 166 61 12 | | |
| 2" 11 - 44 GPM, FNPT/FNPT | 166 61 16 | | |
|  | Regulating valve "Cocon Q" | | |
| | Two-way control valve | | |
| | Pressure independent with test points | | |
| | 1½" 6.6 - 33 GPM, Flanged | 167 61 49 | |
| | 2" 8.8 - 35.2 GPM, Flanged | 167 61 50 | |
| | 2½" 22 - 88 GPM, Flanged | 167 61 51 | |
| | 3" 33 - 132 GPM, Flanged | 167 61 52 | |
| 4" 55 - 220 GPM, Flanged | 167 61 53 | | |
| 5" 119 - 396 GPM, Flanged | 167 61 54 | | |
| 6" 158 - 660 GPM, Flanged | 167 61 55 | | |
|  | Electrothermal actuator | | <p>For use with sizes ½" and ¾"LF</p> <p>Compact design.</p> <p>End switch can be used to start a pump through a relay. Cable 32" (4 wires).</p> <p>Actuation time: 3 minute full stroke</p> |
| | 24 V, power "off", normally closed, M30 x 1.5 four-wire with end switch | 101 24 96 | |
| | 24 V, power "off", normally closed, M30 x 1.5 two-wire only | 101 28 16 | |
|  | 24V, power "off", normally open, M30 x 1.5 two-wire only | 101 28 26 | |
| | Electrothermal actuator | | |
|  | 0-10V for temperature mixing, M30 x 1.5 or proportional flow normally closed | 101 29 52 | |
| | Electromotive actuator | | |
|  | 0-10V, with switchable characteristic, M30 x 1.5 | 101 27 05 | <p>For use with sizes ½" through 1¼"</p> |
| | Electromotive actuator | | |
|  | 24V, 3-point floating, M30 x 1.5 | 101 27 08 | |
| | Electromotive actuator, 24V | | |
|  | 0-10V, or switching as 2 or 3 point floating control, Squeeze type | 115 80 10 | <p>For use with sizes 1½" and 2"</p> <p>Actuator characteristic switchable: Linear, equal percentage, or x²</p> |
| | Electromotive actuator, 24V | | |
|  | 0-10V, or 4 to 20ma, or switching as 2 or 3 point floating control, Squeeze type | 115 80 30 | <p>For use with sizes 2½" through 6"</p> <p>Actuator characteristic switchable: Linear, equal percentage, or x²</p> |
| | Electromotive actuator, 24V | | |

| Item | Description | Item no. | Information |
|---|--|-----------|---|
|  | "OV DMC-2" Flow meter | 106 91 77 | For the regulation and control of balance with Oventrop balancing valves or existing installations. Includes battery set for remote operation. Separate hardware components for the registration (transducer) and processing of measured values (micro-processor). Flow-meter with watertight and dustproof keyboard for setting of values and adjustment to zero. Temperature measuring range: 32 - 212°F Operating voltage: 6 V |
|  | Fill and drain ball valve 1/2" | 106 01 91 | Sold individually |
|  | Measuring adapter for fill and drain ball valve | 106 02 98 | Sold individually |
|  | Set of 2 pressure test points | 106 02 81 | Sold in pairs |
|  | Extension piece for pressure test points length at 80mm | 106 02 95 | Sold individually |
| Insulation shells for Hydrocontrol R | | | |
|  | DN15 1/2" | 106 00 81 | For valves that operate from -4 up to 212°F. |
| | DN20 3/4" | 106 00 82 | |
| | DN25 1" | 106 00 83 | Insulation shells made of polyurethane. |
| | DN32 1 1/4" | 106 00 84 | |
| | DN40 1 1/2" | 106 00 85 | |
| | DN50 2" | 106 00 86 | |
| Insulation shells for Hydrocontrol F and G | | | |
|  | DN65 2 1/2" | 106 25 86 | Double shells with tongue-and-groove fitting tightened by 2 metal straps. |
| | DN80 3" | 106 25 87 | |
| | DN100 4" | 106 25 88 | |
| | DN125 5" | 106 25 89 | |
| | DN150 6" | 106 25 90 | |
| | DN200 8" | 106 25 91 | |

| Item | Description | Item no. | Information |
|---|-------------------------------------|-----------|--|
|  | Three-way mixing valve bronze | | |
| | 3/4" Cv 5.2, Union connection | 113 17 06 | Actuator connection M 30 x 1.5 |
| | 1" Cv 7.6, Union connection | 113 17 08 | With 3 unions to accept threaded or sweat tailpieces (not included). |
| | 1 1/2" Cv 11.0, Union connection | 113 17 12 | |
|  | Three-way diverting valve bronze | | |
| | 3/4" Cv 5.2, Union connection | 113 02 06 | Actuator connection M 30 x 1.5 |
| | 1" Cv 7.6, Union connection | 113 02 08 | With 3 unions to accept threaded or sweat tailpieces (not included). |
| | 1 1/2" Cv 11.0, Union connection | 113 02 10 | |
|  | Sweat tailpiece/3-fold | | |
| | 3/4" sweat connection | 198 76 72 | Order one set per three way valve for complete installation kit. |
| | 1" sweat connection | 198 76 73 | 1 1/4" tailpiece for 1 1/2" three-way body. |
| | 1 1/4" sweat connection | 113 01 96 | |
| 1 1/2" sweat connection | 198 76 75 | | |
|  | NPT tailpiece/3-fold | | |
| | 3/4" NPT connection | 170 60 06 | Order one set per three way valve for complete installation kit. |
| | 1" NPT connection | 170 60 08 | 1 1/4" tailpiece for 1 1/2" three-way body. |
| | 1 1/4" NPT connection | 170 60 10 | |
| 1 1/2" NPT connection | 170 60 12 | | |



Pressure actuated bypass valve
bronze/brass with indicator

3/4"
1"
1 1/4"

Connection

NPT
NPT
NPT

Box qty.

(20)
(6)
(6)

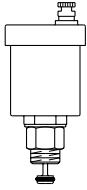
Item no.

165 98 06
165 98 08
165 98 10

Information

Adjustable from 2 - 17 ft. of head.
Bypass valve to maintain adequate boiler
flow and reduce system velocity noises.

Normally piped between supply and
return pipes downstream from pump.
Opens up as differential pressure rise at
one speed pump, as zones close.



Automatic air vent
brass

1/8" without stop

NPT

(100)

108 83 81

Without automatic stop valve.

1/2" with stop

NPT

(100)

108 83 84

Airbleed can be removed from the system,
taken apart and cleaned without draining.

| Item | Item no. | Information |
|------|---|--|
| | <p>"Regumat 130" pumping stations "Regumat S-130" pumping station DN25 1", with Star 16 pump DN25 1", with high efficiency pump</p> | <p>System "Regumat" for the connection from the boiler to the pipework. The products are supplied as a complete system for 1" pipework, size DN 25. To heating loop: 1" FNPT To boiler: 1" FNPT</p> |
| | <p>"Regumat M3-130" for three-way mixing DN25 1", with Star 16 pump DN25 1", with high efficiency pump</p> | <p>Consisting of: a. isolation device with two ball valves and two thermometers b. temperature controller with immersion sensor c. pipe with check valve d. three-way mixing valve e. high temperature safety cut-off f. four-way mixing valve and actuator h. spacer k. insulation case</p> |
| | <p>Regumat M4-130 for four-way mixing DN25 1", with Star 16 pump</p> | <p>"Regumat" valves are made of brass or bronze. All "Regumat" valves are designed for a pressure of to 145 psi, PN 10. For Star 16 pumps, the differential pressure relief device may be added to "Regumat" pumping stations (see item 135 33 90 below). Purchased separately.</p> |
| | <p>Regumat F-130 for fixed temperature control DN25 1", with Star 16 pump DN25 1", with high efficiency pump</p> | <p>"Regumat" Advantages: – high functional efficiency – all components from one supplier – complete systems available – high quality materials – time-saving installation – insulation housing prevents energy loss</p> |
| | <p>Differential pressure relief device for converting "Regumat" to include pressure bypass</p> | <p>135 33 90 Differential pressure relief device for converting "Regumat" S, M3, M4 - 130 Wall bracket for "Regumat 130"</p> |
| | <p>Wall bracket for "Regumat 130"</p> | <p>135 20 96 Manifold distributor with insulation for "Regumat 130"</p> |
| | <p>Manifold distributor for "Regumat 130"</p> | <p>135 15 71 For 2 "Regumat" stations on one manifold. With insulation casing.</p> |

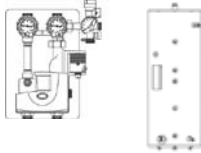
| Item | Description | Item no. | Information |
|------|-------------|----------|-------------|
|------|-------------|----------|-------------|



Evacuated tube collectors

| | |
|------------------------|-----------|
| OV 5-16, with 16 tubes | 540 00 16 |
| OV 5-8, with 8 tubes | 540 00 08 |

Connection tees and sensor port are not included with the collector. They are packaged with the mounting hardware of each and cannot be purchased separately.



Evacuated tube solar hot water kits

| | |
|-------------------------------|------------|
| 80-gallon evacuated tube kit | 540 00 16K |
| 119-gallon evacuated tube kit | 540 00 17K |

Evacuated tube collector connection kits

| | |
|--|-----------|
| Collector connection kit, seamless joint | 540 00 21 |
|--|-----------|

Evacuated tube collector mounting racks

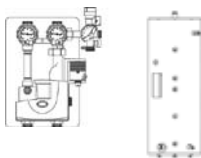
| | |
|-------------------------------------|--------------|
| Tilt mount rack | 540 00 28K |
| Flush mount rack | 540 00 28-FM |
| Spanish tile rack | 540 00 28-TK |
| Standing metal seam mounting blocks | 540 00 28-S5 |

Blocks are sold individually. A minimum of four (4) are required for each collector.



Flat plate collectors

| | |
|-------------------------------------|-----------|
| OVF-21, 3'x7' flat plate collector | 540 03 07 |
| OVF-32, 4'x8' flat plate collector | 540 04 08 |
| OVF-40, 4'x10' flat plate collector | 540 04 10 |



Flat plate solar hot water kits

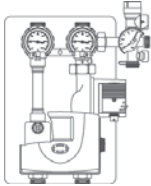
| | |
|--|------------|
| “Recession Buster” solar hot water kit | 540 03 07K |
| 80-gallon flat plate kit | 540 04 08K |
| 119-gallon flat plate kit | 540 34 08K |

Flat plate collector mounting racks

| | |
|-------------------------------------|----------------|
| Tilt mount rack | 540 00 28-FP |
| Flush mount rack | 540 00 28-FPFM |
| Strut mounting clips | 540 00 28-FC |
| Standing metal seam mounting blocks | 540 00 28-S5 |

Blocks are sold individually. A minimum of four (4) are required for each collector.

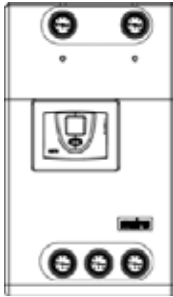
| Item | Description | Item no. | Information |
|------|-------------|----------|-------------|
|------|-------------|----------|-------------|



"Regusol EL130" solar pumping station 169 80 65

Transmission unit "Regusol EL-130" safety group/airvent, Wilo, 0-4 GPM flow meter and differential controller. Size: DN 25 (1") Model: with Wilo-pump ST-16U-25

The "Regusol EL-130" is designed for smaller systems using tanks with internal coils. It has an integrated, pre-wired control and pump. Plug and play design makes for easy installation.



"Regusol X" heat exchanger solar pumping station
 "Uno 15" with 50,000 BTUH heat exchanger 167 10 61
 "Uno 25" with 85,500 BTUH heat exchanger 167 10 95
 "Duo 15" with 50,000 BTUH heat exchanger 167 10 51
 "Duo 25" with 85,500 BTUH heat exchanger 167 10 45

The "Regusol X" pumping station is designed for medium sized systems where the tank does not have an internal heat exchanger. The "Regusol X" has an integrated brazed plate heat exchanger and is pre-wired for easy installation.

The "Regusol X Duo" is fitted with a pre-wired three-way valve for multiple tank installations.

Solar working fluid

Pre-mixed 50% propylene glycol, 5 gallon pail 540 00 91

Solar valves for system commissioning and maintenance

Fill and flush valve 136 30 51

Solar piping

3/4" stainless steel lineset, 50 ft 136 16 53

The stainless steel lineset consists of insulated supply and return lines as well as an extension wire for the collector sensor.

Line set adapter for flat plate collectors 540 00 21-LSA

The line set adapter is required to use the line set with flat plate collectors.

| Item | Item no. | Information |
|------|----------|-------------|
|------|----------|-------------|

Single coil glass lined solar storage tanks



| | | |
|----------------------------------|----------------|--|
| 50-gallon | 540 00 50-SCG | |
| 80-gallon | 540 00 80-SCG | |
| 80-gallon with electric element | 540 00 80-SCEG | |
| 119-gallon | 540 01 19-SCG | |
| 119-gallon with electric element | 540 01 19-SCEG | |

Dual coil glass lined solar storage tanks

| | | |
|----------------------------------|----------------|--|
| 80-gallon | 540 00 80-G | |
| 80-gallon with electric element | 540 00 80-DCEG | |
| 119-gallon | 540 01 19-G | |
| 119-gallon with electric element | 540 01 19-DCEG | |

Large capacity double glass lined solar storage tanks with steel jacket



| | | |
|------------|----------------|--|
| 210-gallon | 540 02 10-DGSJ | |
| 310-gallon | 540 03 10-DGSJ | |
| 435-gallon | 540 04 35-DGSJ | |

Large capacity double glass lined solar storage tanks with top coat insulation

| | | |
|------------|----------------|--|
| 210-gallon | 540 02 10-DGTC | |
| 310-gallon | 540 03 10-DGTC | |
| 435-gallon | 540 04 35-DGTC | |

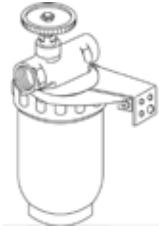


| Item | Item no. | Information |
|----------------------------------|-----------|---|
| Wall thermostat | | EnOcean wireless protocol. Pair up to four actuators to one thermostat. |
| Programmable with night set-back | 115 06 00 | |



| | | |
|---------------------------|-----------|--|
| Valve actuator | | |
| with connection M30 x 1.5 | 115 06 01 | |

| Item | Item no. | Information |
|------|----------|-------------|
|------|----------|-------------|



Fuel oil filters, transparent cup
Brass head, built-in fire/isolation valve,
10 micron sintered plastic element
 $\frac{3}{8}$ " female NPT connections

| | | |
|-----------------------------|-----------|--|
| Standard "S" filter, 23 GpH | 263 27 61 | |
| Magnum "M" filter, 34 pH | 263 27 71 | |
| Bracket | 212 68 03 | |
| Special wrench | 212 66 91 | |



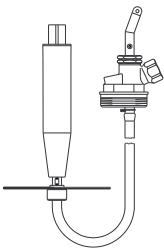
Fuel filter replacement elements (include O-Ring)

| | | |
|---|-----------|--|
| Sintered plastic 10 micron for "S" Filter | 263 28 61 | |
| Sintered plastic for "M" Filter | 263 28 71 | |
| Nickel mesh 50 micron (for "S" Filter only) | 212 61 00 | |
| Sintered bronze 10 micron (for "S" Filter only) | 212 60 54 | |



Fuel filter spare parts

| | | |
|-------------------------|-----------|--|
| Replacement "S" cup | 212 67 51 | |
| Replacement "M" cup | 212 67 55 | |
| Replacement brass union | 212 66 00 | |
| Replacement O-ring | 212 65 00 | |



Floating suction kit
2" NPT tank, $\frac{3}{8}$ " fuel line connection
Includes check valve and 6ft of suction line

Fuel oil is drawn 2" from the surface.

| | | |
|--------------------|-----------|--|
| for 1-pipe systems | 205 36 51 | |
| for 2-pipe systems | 205 36 53 | |

| Item | Connection | Box qty. | Item no. | Information |
|------|------------|----------|----------|-------------|
|------|------------|----------|----------|-------------|

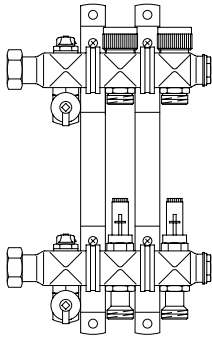
Stainless steel manifold 1”
for underfloor heating systems
for emitter distribution and flow control
with “flowmeters”
flat sealing, with valve inserts M 30 x 1.5
for thermostatic and electronic control

Application:
Stainless steel manifold for radiant floor systems. Supply and return loops for emitters—such as baseboards, radiators and convectors—for zone control and or flow control.

Description:
Assembled manifold with fill/drain valves, vent plugs and end caps. Branch connections 3/4” male threads for compression fittings “Euroconus,” not sold with manifold. Inline zone valves and flow meters. Sound-absorbing brackets.

1” sweat tails.

Maximum 2 gpm per circuit loop.



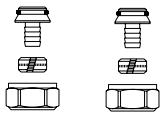
- for 2 branches
- for 3 branches
- for 4 branches
- for 5 branches
- for 6 branches
- for 7 branches
- for 8 branches
- for 9 branches
- for 10 branches
- for 11 branches
- for 12 branches

- 168 41 72
- 168 41 73
- 168 41 74
- 168 41 75
- 168 41 76
- 168 41 77
- 168 41 78
- 168 41 79
- 168 41 80
- 168 41 81
- 168 41 82

“Euroconus”
Compression fittings for stainless steel manifolds,
“Unibox”, panel radiators, etc.

All “Euroconus” sold in pairs.

PEX connections required for radiant floor heating tubing. “Euroconus” compression fitting required for branch connection to stainless steel manifold (above).



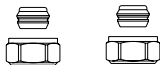
- US-PEX 3/8”
- US-PEX 1/2”
- US-PEX 5/8”

- (100)
- (100)
- (100)

- 164 68 49
- 164 68 50
- 164 68 51

Copper 1/2”, with soft sealing rubber fitting
Copper 1/2”, with brass compression fitting

Copper fittings for hard pipe in 1/2” from manifold to emitters, such as for baseboard, panel radiators, and convectors.



- (100)
- (100)

- 101 68 44
- 101 68 64

Sweat tailpiece
1”BSP/sweat

Sold individually



Coupling
nickel plated
3/4” x 1”

BSP/BSP

Connects (2) manifolds.
Maximum number of loops not to exceed 12 per manifold grouping.



- 140 72 06

Sweat tailpiece with thermometer
1”

BSP/sweat

Sold individually



- 140 98 06

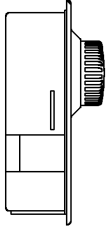
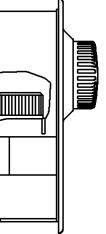
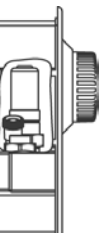
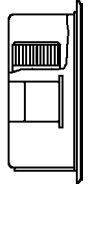

Double feed adapter
3/4” x 1”

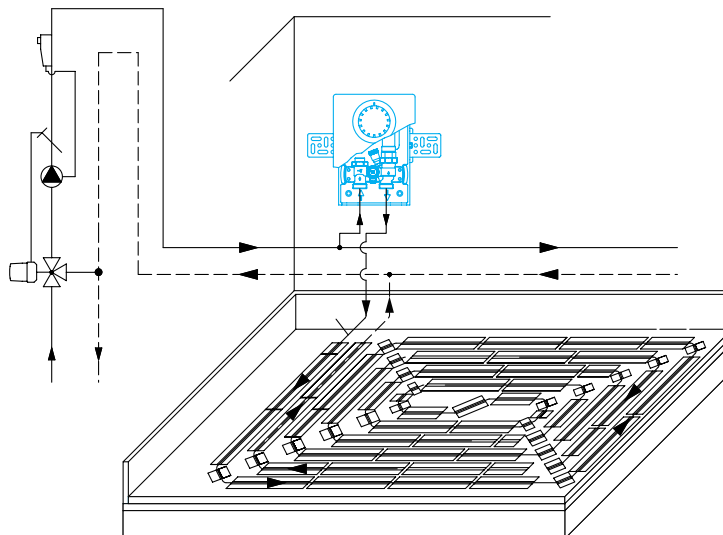
BSP/NPT

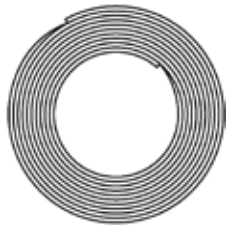
Sold individually



- 140 71 06

| Item | Connection | Item no. | Information |
|---|-------------|-----------|---|
|  <p>"Unibox"</p> | | | The "Unibox" is a non-electric radiant floor zone controller for hot water temperatures suitable with underfloor heating systems. |
|  <p>"Unibox E T" Control room temperature Room thermostat Air vent, flush valve</p> | (Euroconus) | 102 26 32 | All in one, wall mounted thermostatic operated radiant floor zone valve. Thermostat setting set by user "0" setting = positive "off" "f" setting = freeze protection Temperature range 42 - 84 °F (No thermostat in "Unibox E RTL" for return temperature limiting only) |
|  <p>"Unibox E Plus" Combination of room thermostat and return temperature limiter Air vent, flush valve</p> | (Euroconus) | 102 26 33 | Route PEX vertically in the stud cavity to the "Unibox" for modulating thermostatic control of underfloor heating. "Unibox" requires "Euroconus" compression fittings (see page 14). Limit floor area to 300 sq. ft. per "Unibox." Enclosed in attractive wall box, white cover and powder white thermostat. |
|  <p>"Unibox E BV" Room thermostat with presetting bypass Air vent, flush valve</p> | (Euroconus) | 102 26 62 | Bypass presetting to maintaining floor warming, even if the room thermostat is satisfied. Perfect for rooms with another heat source. "Unibox E BV" insures floor warming. |
|  <p>"Unibox E RTL" Return temperature limiter Air vent, flush valve</p> | (Euroconus) | 102 26 31 | For maintaining warm floor temperatures at low or high demand. Can be used as first stage heat demand controlling return floor water temperature. Other heat sources make up second stage demand if required. |





PE-Xc plastic pipe
3/8" OV-PEX O2 Barrier Pipe

length per roll 300' 460 00 01 - 300
length per roll 1000' 460 00 01 - 000

1/2" OV-PEX O2 Barrier Pipe

length per roll 300' 460 00 02 - 300
length per roll 1000' 460 00 02 - 000

5/8" OV-PEX O2 Barrier Pipe

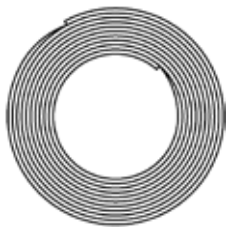
length per roll 100' 460 00 03 - 100
length per roll 1000' 460 00 03 - 000

3/4" OV-PEX O2 Barrier Pipe

length per roll 100' 460 00 04 - 100
length per roll 300' 460 00 04 - 300
length per roll 500' 460 00 04 - 500
length per roll 1000' 460 00 04 - 000

1" OV-PEX O2 Barrier Pipe

length per roll 100' 460 00 05 - 100
length per roll 300' 460 00 05 - 300



PE-Xa plastic pipe

3/8" OV-PEX O2 Barrier Pipe

length per roll 300' 560 00 01 - 300
length per roll 1000' 560 00 01 - 000

1/2" OV-PEX O2 Barrier Pipe

length per roll 300' 560 00 02 - 300
length per roll 1000' 560 00 02 - 000

5/8" OV-PEX O2 Barrier Pipe

length per roll 100' 560 00 03 - 100
length per roll 1000' 560 00 03 - 000

3/4" OV-PEX O2 Barrier Pipe

length per roll 100' 560 00 04 - 100
length per roll 300' 560 00 04 - 300
length per roll 500' 560 00 04 - 500
length per roll 1000' 560 00 04 - 000

1" OV-PEX O2 Barrier Pipe

length per roll 100' 560 00 05 - 100
length per roll 300' 560 00 05 - 300

Oventrop Corporation Limited Warranty

Oventrop Corporation warrants to its "Customers" that all Oventrop products, used for heating and plumbing applications and sold in accordance with these warranty provisions, shall be free from defects in material and workmanship. "Customer" as used herein shall mean an end-user of Oventrop products.

This limited warranty shall last two (2) years for electric parts (pumps, controls and miscellaneous electric parts), ten (10) years for solar collectors, twenty (20) years for PEX tubing, and five (5) years for all other products (valves and domestic water tanks) from the date of purchase, unless otherwise specified in writing.

In order to be eligible for a warranty claim, Products sold

- (1) must be installed and maintained professionally according to the relevant assembly instructions and the product manual,
- (2) must only be used for purposes provided in the Oventrop Corporation's product description or assembly instructions,
- (3) must be exposed only to gaseous or liquid media approved for the product by Oventrop Corporation, and
- (4) Shall not be combined with products of other manufacturers unless otherwise stated in the product manual.

Oventrop Corporation's sole obligation hereunder shall be, at its option, to issue credit, repair or replace any component or part thereof which is proved to be defective. The limited warranty does not cover cost for transportation or labor charges (including installation and removal) unless such charges are authorized in writing in advance by the Oventrop Corporation. Any repairs without the express written consent of Oventrop Corporation shall render this limited warranty invalid. Oventrop Corporation disclaims allowances for dismounting and consequential losses and damages.

Warranty claims must be received by Oventrop Corporation within the applicable warranty period and within thirty (30) days from when the cause for the claim occurred or was discovered. Upon receipt of prompt notice of a warranty claim, Oventrop Corporation shall have ten (10) business days in which to determine whether it acknowledges responsibility for any asserted defects in material or workmanship and the appropriate action to be taken.

This limited warranty and any claims arising from the breach of warranty, or any other claim arising hereunder, shall be governed and construed under the laws of the State of New York. No other persons than Oventrop Corporation employees have any expressed or implied authority to bind Oventrop Corporation to any agreement or warranty of any kind without the express written consent of Oventrop Corporation.

Disclaimer of Warranties:

OVENTROP CORPORATION DISCLAIMS ANY WARRANTY NOT PROVIDED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. IT IS EXPRESSLY UNDERSTOOD THAT OVENTROP CORPORATION IS NOT RESPONSIBLE FOR ANY CONSEQUENTIAL OR OTHER DAMAGES THAT MAY ARISE FROM USING OVENTROP CORPORATION SYSTEM COMPONENTS. DAMAGE RESULTING FROM WATER FREEZING IN THE TUBING DOES NOT CONSTITUTE A DEFECT IN MATERIAL OR WORKMANSHIP, AND SHALL NOT BE COVERED BY THIS WARRANTY. OVENTROP-TUBING MAY NOT BE STORED IN DIRECT SUNLIGHT FOR ANY PERIOD LONGER THAN THREE WEEKS, OR THIS LIMITED WARRANTY BECOMES INVALID. OVENTROP CORPORATION DISCLAIMS ANY STATUTORY OR IMPLIED WARRANTY OF HABITABILITY. OVENTROP CORPORATION FURTHER DISCLAIMS ANY RESPONSIBILITY FOR LOSSES; EXPENSES; INCONVENIENCES; AND SPECIAL, INDIRECT, SECONDARY, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM OWNERSHIP OR USE OF THE ARTICLES SOLD HEREUNDER. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF.

Oventrop Corp. 2011

OVENTROP CORP.
TERMS AND CONDITIONS OF SALE

These General Terms and Conditions of Sale and Delivery (these "Terms") are applicable to all U.S. customers (the "Customers" and each, individually, a "Customer") of Oventrop Corp., a Delaware corporation (the "Company").

1. Terms and Conditions of Sale:

1.1 Company shall sell and deliver to Customer and Customer shall purchase and accept from Company the products (herein, the "Products") described on or in any confirmed order, agreement or quotation, or any combination thereof (the "Order"), pursuant to the terms and conditions of the Order and those specified below, which taken together shall constitute the entire agreement between Company and Customer regarding the Products (herein, this "Agreement").

1.2 No other terms or conditions shall be of any effect unless otherwise specifically agreed to by Company in a separate written agreement duly signed by an officer of Company. Customer will be deemed to have assented to all Terms if any part of the Products is accepted by Customer. If Customer finds any Term not acceptable, Customer must so notify Company at once and must reject the Products delivered under this Agreement. Any additional or different terms or conditions contained in Customer's order or response hereto shall be deemed objected to by Company and shall be of no effect. No general terms and conditions of a Customer shall at any time form a part of the content of any contract or agreement between the Customer and the Company, even if they are not further expressly rejected by the Company.

1.3 No Order is binding upon the Company until the earlier of acceptance of the Order in writing or the delivery of the Products to the Customer. Notwithstanding any prior acceptance of an Order by Company, Company shall have no obligation if the Customer is in breach of any of its obligations hereunder, or any other agreement between the Customer and Company, at the time Company's performance was due.

1.4 All verbal agreements concerning the terms of any Order, including agreements made by telephone, shall have no force and effect unless and until acknowledged by the Company in writing.

1.5 Customer shall bear all costs associated with the cancellation or modification of the Order.

2. Technical Data and Information in Catalogs: All technical data and specifications in catalogs, installation instructions, product documentation, price lists, etc. are bench marks only and are not warranted or guaranteed in any manner by the Company. Oventrop may from time to time adjust such technical data and specifications without notice.

3. Prices:

3.1 Unless otherwise stated, all price quotations are EX WORKS (per Incoterms 2000) and do not include costs for packaging, postage or other freight charges, insurance or taxes, if any.

3.2 Products prices will be governed by the Company's current prices in effect from time. A price list is available on request.

3.3 Prices quoted in a currency other than United States Dollars are based on the official exchange rate on the date of the quote. Prices will be invoiced on the basis of the currency exchange rate in effect on the date of confirmation of any Order.

3.4 Company may without notice to Customer increase the price of the Products by the amount of any new or increased tax or duty (excluding franchise, net income and excess profits taxes) which Company may be required to pay on the manufacture, sale, transportation, delivery, export, import or use of the Products or the materials required for their manufacture or which affects the cost of such materials

4. Terms of Payment:

4.1 Payment terms are net 30 days from the date of invoice.

4.2 Prices for future deliveries of Products will be governed by the Company's current price list then in effect, which is available on request. All pricing information contained in catalogs or price lists of Oventrop is subject to confirmation by Company.

4.3 Company may change its prices and delivery terms for Products in its sole discretion, by giving Buyer at least ten (10) days prior notice that there will be a change.

4.4 Company may without notice to Buyer increase the price of the Products by the amount of any new or increased tax (excluding franchise, net income and excess profits taxes) which Company may be required to pay on the manufacture, sale, transportation, import, export, delivery or use of the Products or the materials required for their manufacture or which affects the cost of such materials

5. Taxes: Purchaser agrees to provide Oventrop with its assigned tax exemption number and agrees to pay, in addition to the purchase price, all applicable sales, use, excise, value added or other similar taxes.

6. Delivery Terms

6.1 Except as specified elsewhere herein or in any other as otherwise agreed to in writing between Company and Buyer, orders for Products may not be cancelled without Company's prior written consent and the payment of cancellation charges. Company shall specify the cancellation charges upon inquiry by Buyer.

6.2 Title to and risk of loss for the Products shall pass to Buyer upon Company's delivery thereof to carrier and any reference in these terms and conditions to "deliver" shall refer to such delivery.

6.3 The Customer shall not be liable to Buyer for delays in delivery or damage to Products while in transit, irrespective of whether Customer or Buyer determined the mode of transportation

7. Force Majeure: The Company shall not be liable to Buyer or any other person for any failure or delay in the performance of any obligation under this Agreement due to events beyond its reasonable control, including, but not limited to, fire, storm, flood, earthquake, explosion, accident, acts of the public enemy, wars, riots and public disorder, sabotage, strikes, lockouts, labor disputes, labor shortages, work slowdown, stoppages or delays, shortages or failures or delays of energy, materials, supplies or equipment, transportation embargoes or delays, acts of God, breakdown in machinery or equipment, and, except as otherwise set forth in this Agreement, acts or regulations or priorities of the federal, state or local governments. Buyer shall not be liable for delay or failure to take Products as ordered due to any such event, except that Buyer shall be liable to the Company for such delay or failure with respect to Products already in transit or specially made for Buyer which are not readily saleable without loss to the Company. When the event operating to excuse performance by either party shall cease, this Agreement shall continue in full force until all deliveries have been completed

8. Indemnification by Customer:

8.1 Except in cases of Company's willful misconduct or gross negligence, Customer agrees to diligently defend, and to hold harmless and indemnify, Company and its directors, officers, employees, shareholders, affiliates, agents and representatives (the "Company Indemnitees") from and against any and all liability, claims, lawsuits, losses, demands, damages, costs and expenses, including, without limitation, attorney's fees and costs, expert's fees and costs, and court costs, and in each case as such costs are incurred (the "Losses"), (i) arising directly or indirectly out of any use of the Products, whether authorized or unauthorized, and irrespective of whether such claim alleges personal injury, product liability, strict or absolute liability, breach of contract or implied contract or warranty, or any other claim of any nature on any theory of recovery, except to the extent such Losses have been incurred as a direct result of a breach of Company's warranty pursuant to Section 10 or Company's gross negligence or willful misconduct, or (ii) arising out of any breach or misrepresentation of any of Customer's representations or covenants or other terms of this Agreement, including, without limitation, any failure to use or supervise use of the Products strictly in accordance with the User Manual.

8.2 Company will promptly notify Customer of any claim, suit or proceeding that Customer may have indemnification obligations with respect to under this Section; provided, however, that any failure by Company to provide prompt written notice hereunder shall excuse Customer only to the extent that Customer is prejudiced by such failure to give notice. Company shall cooperate with Customer with regard to the defense of any suit or threatened suit. Customer may assume control of the defense of any such claim, proceeding or suit and shall have the authority to settle or otherwise dispose of any such suit or threatened suit, and to appeal any adverse judgment which may be entered, except that Customer must obtain Company's prior written consent to any settlement unless the settlement involves solely the payment of money and all of such payment is payable by Customer, its insurers, and parties other than the Company Indemnitees.

8.3 Customer shall notify Company in writing within 10 days of Customer's receipt of knowledge of any accident or safety incident involving the Products which results in personal injury or damage to property, or any government or similar investigation, claim or inquiry involving the Products. Customer shall fully cooperate with Company in the investigation and determination of the cause of any such accident or incident, and shall make available to Company all statements, reports and tests made by Customer or made available to Customer by others. The furnishing of such information to Company and any investigation by Company of such information or incident report shall not in any way constitute any assumption of any liability for such accident or incident by Company, nor shall it affect the indemnification obligations above.

8.4 Customer represents and warrants that it has in place the necessary insurance and liability waivers to cover the use and operation of the Products by Customer's personnel, customers, and third-party users. In addition, Customer represents and warrants that it maintains a policy of insurance at levels sufficient to support the indemnification obligations assumed by it in this Agreement. Customer will notify Company promptly if Customer's coverage is materially reduced or cancelled.

9. Choice of law and forum: These terms and conditions and any order shall be construed and the rights of the parties shall be interpreted in accordance with the laws of New York. The parties agree that courts located in the New York City, borough of Manhattan, shall be the exclusive forum for any dispute arising hereunder or with respect to any order. The parties expressly waive any objections based on personal jurisdiction or venue and consent to service of process by certified mail, return receipt requested.

10. Limited Warranty: For Warranty terms, see ATTACHMENT A (Warranty).

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