oventrop

Premium Armaturen + Systeme

D

„Regucor WHS“ Energiespeicher-Zentrale

Einbau- und Betriebsanleitung für Fachpersonal

Vor dem Aufbau der Speicherzentrale die Einbau- und Betriebsanleitung vollständig lesen!
Einbau, Inbetriebnahme, Bedienung und Wartung darf nur durch geschultes Fachpersonal durchgeführt werden!
Die Einbau- und Betriebsanleitung sowie alle mitgeltenden Unterlagen sind an dem Anlagenbetreiber weiterzugeben!

Inhalt

1 Allgemeine Hinweise 1
2 Sicherheitshinweise..... 2
3 Transport, Lagerung und Verpackung..... 2
4 Technische Daten 2
5 Montage 4
6 Technische Daten der Komponenten..... 10
7 Zubehör 21
8 Wartung und Pflege..... 22
9 Demontage und Entsorgung..... 22
10 Allgemeine Bedingungen für Verkauf und Lieferung.. 22

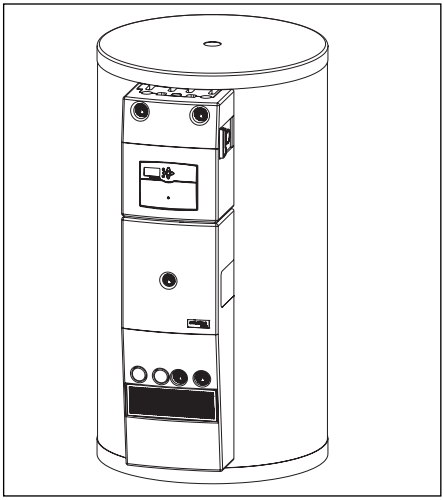


Abb. 1 „Regucor WHS“

OVENTROP GmbH & Co. KG
Paul-Oventrop-Straße 1
D-59939 Olsberg
Telefon +49 (0) 29 62 82-0
Telefax +49 (0) 29 62 82-400
E-Mail mail@oventrop.de
Internet www.oventrop.com

Eine Übersicht der weltweiten Ansprechpartner finden Sie unter www.oventrop.de.

1 Allgemeine Hinweise

1.1 Informationen zur Einbau- und Betriebsanleitung

Diese Einbau- und Betriebsanleitung dient dem geschulten Fachpersonal dazu, die Energiespeicher-Zentrale fachgerecht zu installieren und in Betrieb zu nehmen.
Mitgeltende Unterlagen – Anleitungen aller Anlagenkomponenten sowie geltende technische Regeln – sind einzuhalten.

1.2 Aufbewahrung der Unterlagen

Diese Einbau- und Betriebsanleitung ist vom Anlagenbetreiber zum späteren Gebrauch aufzubewahren.

1.3 Urheberschutz

Die Einbau- und Betriebsanleitung ist urheberrechtlich geschützt.

1.4 Symbolerklärung

Hinweise zur Sicherheit sind durch Symbole gekennzeichnet. Diese Hinweise sind zu befolgen, um Unfälle, Sachschäden und Störungen zu vermeiden.

GEFAHR GEFAHR weist auf eine unmittelbar gefährliche Situation hin, die zum Tode oder zu schweren Verletzungen führen wird, wenn die Sicherheitsmaßnahmen nicht befolgt werden.

WARNUNG WARNUNG weist auf eine möglicherweise gefährliche Situation hin, die zum Tode oder zu schweren Verletzungen führen kann, wenn die Sicherheitsmaßnahmen nicht befolgt werden.

VORSICHT VORSICHT weist auf eine möglicherweise gefährliche Situation hin, die zu geringfügigen oder leichten Verletzungen führen kann, wenn die Sicherheitsmaßnahmen nicht befolgt werden.

ACHTUNG ACHTUNG weist auf mögliche Sachschäden hin, welche entstehen können, wenn die Sicherheitsmaßnahmen nicht befolgt werden.

Technische Änderungen vorbehalten.

138355080 03/2014

2 Sicherheitshinweise

2.1 Bestimmungsgemäße Verwendung

Die Betriebssicherheit ist nur bei bestimmungsgemäßer Verwendung der Speicherzentrale gewährleistet.

Jede darüber hinausgehende und/oder andersartige Verwendung der Energiespeicher-Zentrale ist untersagt und gilt als nicht bestimmungsgemäß. Ansprüche jeglicher Art gegen den Hersteller und/oder seine Bevollmächtigten wegen Schäden aus nicht bestimmungsgemäßer Verwendung können nicht anerkannt werden.
Zur bestimmungsgemäßen Verwendung zählt auch die korrekte Einhaltung der Einbau- und Betriebsanleitung.

2.2 Gefahren, die vom Einsatzort und Transport ausgehen können

Der Fall eines externen Brandes wurde bei der Auslegung der Energiepeicher-Zentrale nicht berücksichtigt.

⚠ GEFAHR

Verbrennung- oder Verbrühungsgefahr!
Wasserleitungen und das am Wasserhahn ausgetretene Wasser können sehr heiß sein (>60 °C).
Deshalb:
- Bei allen Arbeiten in der Nähe von heißen Bauteilen grundsätzlich Arbeitsschutzkleidung und Schutzhandschuhe tragen
- Vor allen Arbeiten sicherstellen, dass alle Bauteile auf Umgebungstemperatur abgekühlt sind
- Gegebenenfalls bauseits Verbrühungsschutzmaßnahmen vorsehen

3 Transport, Lagerung und Verpackung

3.1 Transportinspektion

Lieferung unmittelbar nach Erhalt sowie vor Einbau auf mögliche Transportschäden und Vollständigkeit untersuchen.
Falls derartige oder andere Mängel feststellbar sind, Warensendung nur unter Vorbehalt annehmen. Reklamation einleiten. Dabei Reklamationsfristen beachten.

3.2 Lagerung

Die Energiepeicher-Zentrale nur unter folgenden Bedingungen lagern:
- Nicht im Freien. Trocken und staubfrei aufbewahren
- Keinen aggressiven Medien oder Hitzequellen aussetzen
- Vor Sonneneinstrahlung und übermäßiger mechanischer Erschütterung schützen
- Lagertemperatur: –20 °C bis +60 °C,
- relative Luftfeuchtigkeit: max. 95 %

3.3 Verpackung

Sämtliches Verpackungsmaterial ist umweltgerecht zu entsorgen.

3.4 Montage, Inbetriebnahme, Wartung

ACHTUNG

In der „Regucor WHS“ – Energiespeicherzentrale kommt ein kupfer- oder nickelgelöteter Edelstahl - Plattenwärmeübertrager zum Einsatz.
Es liegt in der Verantwortung des Anlagenplaners und Anlagenbetreibers, Wasserinhaltsstoffe und Faktoren, die die Korrosion und Steinbildung des Systems beeinflussen, zu berücksichtigen und für den konkreten Anwendungsfall zu bewerten.
Beachten Sie dazu auch das Dokument „Anforderungen an das Trinkwasser bei Einsatz von Oventrop Frischwasser- und Wohnungsstationen“ unter www.oventrop.com

⚠ GEFAHR

Lebensgefahr!
Im Betrieb **müssen** die Kugelhähne der Solarstation geöffnet sein

⚠ GEFAHR

Lebensgefahr bei unzureichender Qualifikation!
Unsachgemäße Montage kann zu erheblichen Personen- und Sachschäden führen.
Deshalb:
Montage, Erstinbetriebnahme, Wartung und Reparaturen von autorisierten Fachkräften durchführen lassen. (VDE, EN 12975 & DIN 4807)

⚠ WARNUNG

Für den einwandfreien Betrieb der Anlage muss auf vollständige Entlüftung der Rohrleitungen und entsprechendes Spülen geachtet werden.
Entsprechende Komponenten (Entlüfter, etc.) müssen gegebenenfalls bauseits vorhanden sein.
Der entsprechende Anlagendruck muss gewährleistet sein!

3.5 Ersatzteile

⚠ WARNUNG

Verletzungsgefahr durch falsche Ersatzteile!
Falsche oder fehlerhafte Ersatzteile können zu Beschädigungen, Fehlfunktionen oder Totalausfall führen sowie die Sicherheit beeinträchtigen.
Deshalb:
- Nur Originalersatzteile des Herstellers verwenden

4 Technische Daten

Medium: Nicht aggressive Flüssigkeiten (z. B. Wasser und geeignete Wasser-Glykolgemische gemäß VDI 2035). Nicht für Dampf, Schwimmbadwasser, ölhaltige und aggressive Medien geeignet.

⚠ GEFAHR

Es ist durch geeignete Maßnahmen (z. B. Sicherheitsventile) sicherzustellen, dass die max. und min. Betriebsdrücke sowie die max. und min. Betriebstemperaturen nicht überschritten bzw. unterschritten werden.

4.1 Abmessungen

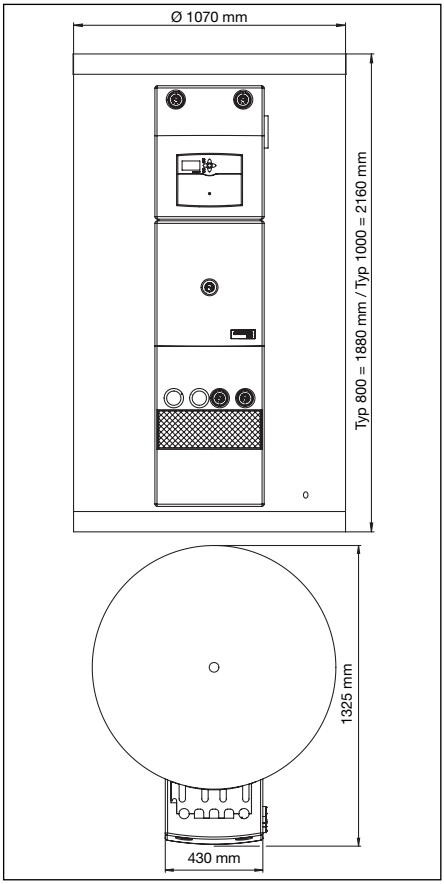


Abb. 2 Abmessungen

4.2 Einbaumaße

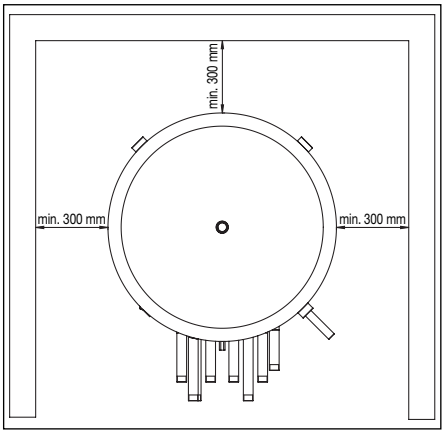


Abb. 3 Einbaumaße

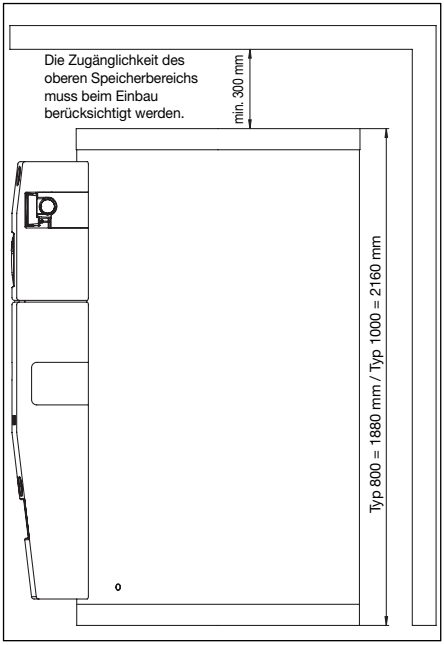


Abb. 4 Einbaumaße

⚠ WARNUNG

Ein sicherer Stand des Speichers auf einem ebenen Untergrund muss gewährleistet sein.

ACHTUNG

Leckagewanne / Bodenablauf
Bei Aufstellung des Speichers, insbesondere bei Dachzentralen, ist die Verwendung einer Leckagewanne vorgeschrieben. Bei Aufstellung in Kellerräumen, muss dieser über einen Bodenablauf verfügen, um evtl. austretendes Wasser ableiten zu können!

5 Montage

- Die Speicherisolierung entfernen
- Die Verschlussstopfen aus den benötigten Beladestutzen entfernen
- Die Beladestutzen-Verlängerungen mit der selbstdichtenden Seite bis zum Anschlag fest in die benötigten Beladestutzen einschrauben

ACHTUNG

Bei mehr als zwei benötigten Beladestutzen sind die Verlängerungen (Art. – Nr. 138 35 93) zu verwenden!

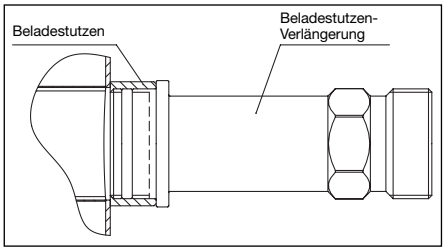


Abb. 5 Montierte Verlängerung für Beladestutzen

- Den Isolierungsmantel entlang der Perforation an den benötigten Stellen erst sauber ausschneiden und dann ausdrücken
- Die Temperatursensoren für den Speicher an entsprechenden Klemmen positionieren
- Den Isolierungsmantel an den Speicheranschlüssen ausrichten und anbringen

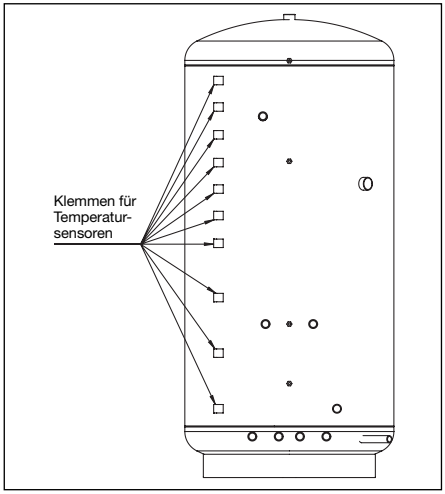


Abb. 6 Speicher mit demontierter Isolierung

Hinweise zur Montage der Wärmedämmung

Die Isolierung darf nur temperiert montiert werden (20-22 °C)!

- Die Isolierung ist in die Richtung des Reisverschlusses zusammenzudrücken!
- Reißverschluss (1) dabei durch eine zweite Person schließen!

ACHTUNG

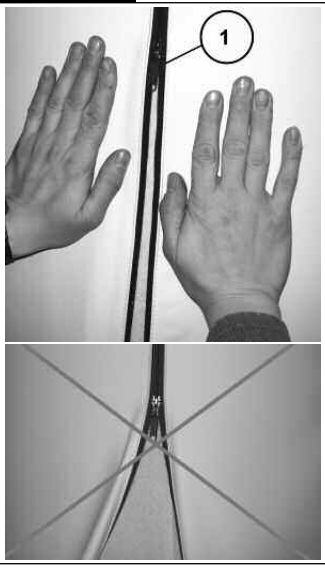


Abb. 7 Isoliermantelmontage

ACHTUNG

Nie den Reißverschluss als Zughilfe benutzen. Dies führt zu irreparablen Schäden am Isolierungsmantel!

- Gruppe Halterung montieren (Abb. 8)
- Die Gewindestangen in die am Speicher angeschweißten Muttern einschrauben (Achtung: In die oberste Mutter muss die Stange L = 230 mm eingeschraubt werden! In die unteren drei Muttern die Gewindestangen L = 185 mm einschrauben!) (Abb. 8)
- Die Distanzhülsen aufschieben
- Die Halterung anbringen und mit Scheiben und Muttern fixieren (Achtung: Für die beiden unteren Gewindestifte die Messing-Muttern L = 22 mm benutzen, für die oberen Gewindestifte Stahlmuttern benutzen!)

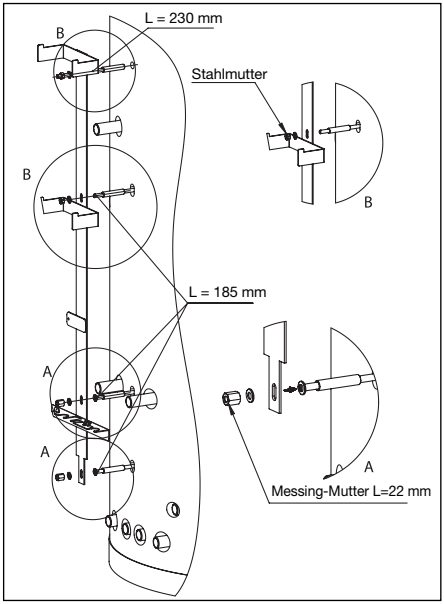


Abb. 8 Montage Gruppe Halterung

– Die Kugelhähne G 1 mit Dichtungen an der rechten Speicherseite anschließen (Abbildung 9 Punkt 1)
– Die Verschlusskappen G 1 mit Dichtungen an der linken Speicherseite anbringen (Punkt 2)
– Sicherungsblech von der Halterung lösen
– Die Unterschale der Heizkreisgruppe über die Halterung schieben und mit dem Klemmblech, den Unterlegscheiben und den Muttern befestigen (Punkt 3)

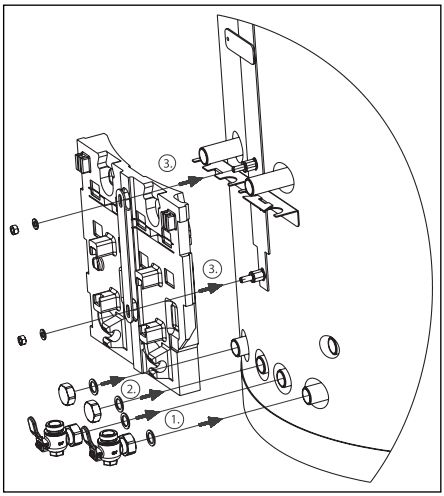


Abb. 9 Montage Kugelhähne und Isolierung Heizkreise

– Metallwellrohre L = 45 mm mit Dichtungen an die Heizkreisgruppe anschließen (Abb. 10 Punkt 1). Anschließend die Gruppe in die Halterung einhängen (Punkt 2), das Sicherungsblech aufsetzen und an der Halterung fixieren (Punkt 3)
– Metallwellrohre mit den Kugelhähnen verbinden
– Die Kugelhähne schließen

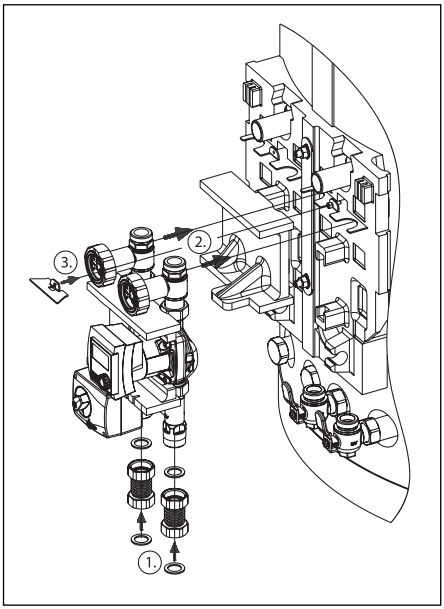


Abb. 10 Montage Heizkreisgruppe

ACHTUNG

Heizkreisanschlüsse des Speichers dürfen **ausschließlich** zum Anschluss der Heizkreisgruppen genutzt werden!

– Die Heizkreisgruppe über den Speicher hinaus verrohren (Abb. 11 Punkt 1), bzw. Anschlussset Art.-Nr. 1383580 und für den optionalen zweiten Heizkreis Art.-Nr. 1383581 nutzen.
  Auf den richtigen Anschluss von Vorlauf und Rücklauf achten
– Die Unterschale der Frischwasserstation (Punkt 2) und der Solargruppe (Punkt 3) auf die Halterung aufschieben
– Die Kugelhähne für die Anbindung der Frischwasserstation am Speicher fest schrauben (Punkt 4)

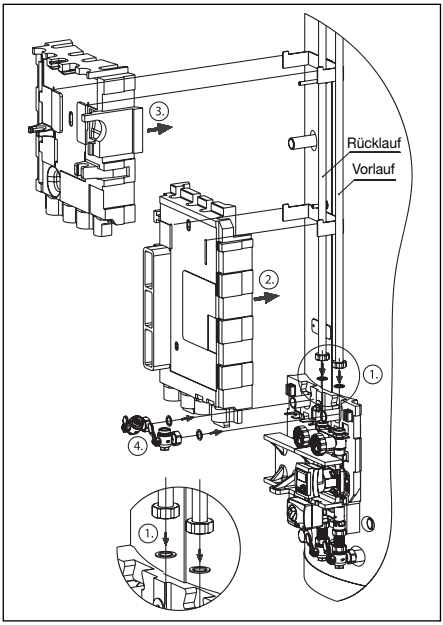


Abb. 11 Montage Wärmedämmungen

Anschluss-Set Art.-Nr. 1383580 zum Anschluss eines Heizkreises und der Frischwasserstation.

Bestehend aus:
2 x Edelstahlrohr (L = 1260 mm)
2 x Edelstahlrohr (L = 500 mm)
4 x Dichtring für G 1
4 x Dichtring für G ¾

Anschluss-Set Art. – Nr. 1383581 zum Anschluss des Erweiterungs-Heizkreises Art.-Nr. 1383581.

Bestehend aus:
2 x Edelstahlrohr (L = 1260 mm)
4 x Dichtring für G 1

– Die Frischwasserstation in die Halterung einhängen (Abb.12/13)
– Mit der Sicherungsschraube und einer Unterlegscheibe gegen Verdrehung sichern

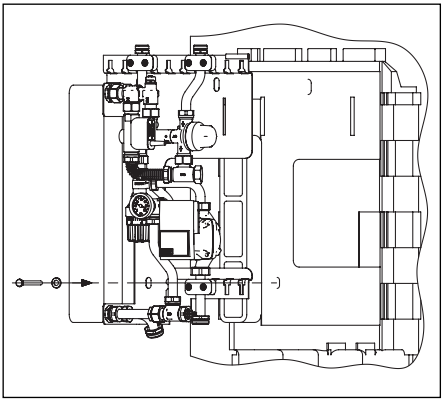


Abb. 12 Montage Frischwasserstation

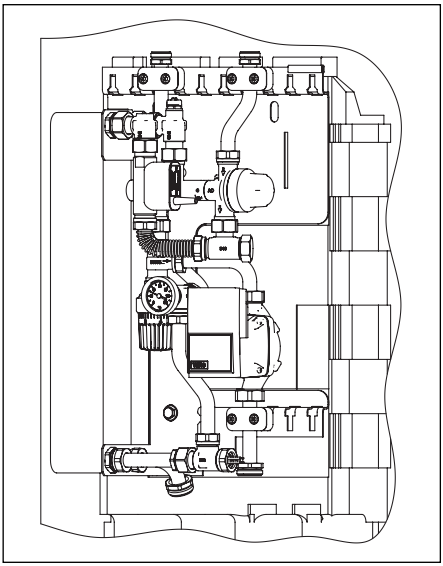


Abb. 13 Montage Frischwasserstation

– Die Frischwasserstation durch Metallwellrohre G1 L = 110 mm mit den Kugelhähnen verbinden

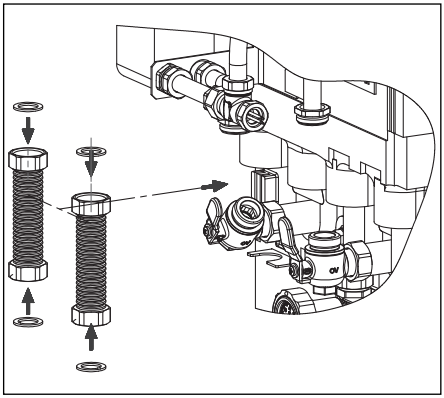


Abb. 14 Montage Metallwellrohre

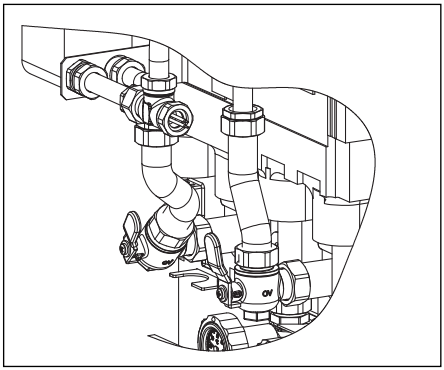


Abb. 15 Montage Metallwellrohre

– Den Regler, wie in Abbildung 16, von der Solargruppe trennen

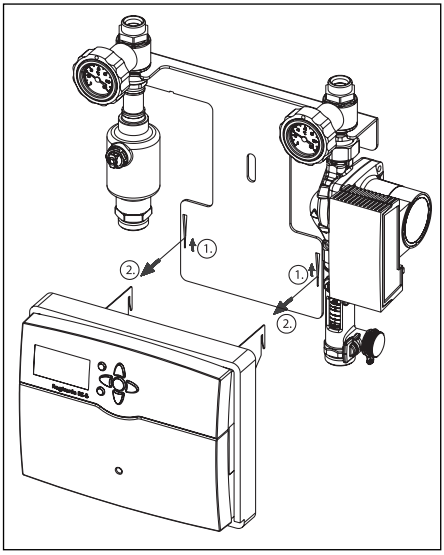


Abb. 16 Demontage Regler

– Die Solargruppe in die Halterung einhängen (Abbildung 17 Punkt 1) und mit einer Unterlegscheibe und einer Sicherungsmutter fixieren (Punkt 2)

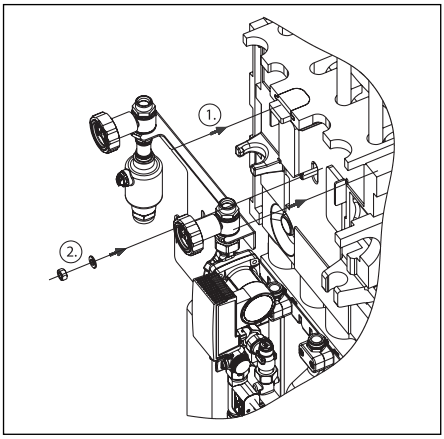


Abb. 17 Montage Solargruppe

– Den solaren Vorlauf durch das isolierte Metallwellrohr G1 (Abb. 18) L = 85 mm und den Winkel mit dem Speicher verbinden

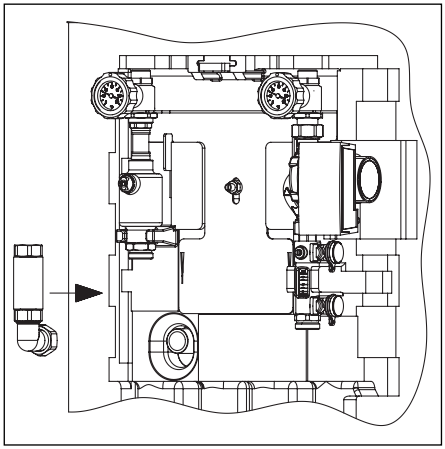


Abb. 18 Montage Metallwellrohr Solarvorlauf

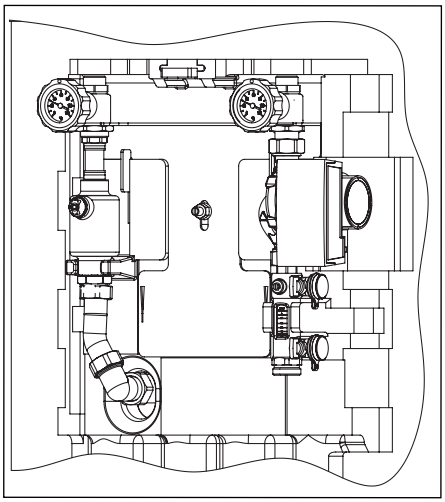


Abb. 19 Montage Metallwellrohr

– Den Kugelhahn G1 an den Speicher schrauben (Abb. 20 Punkt 1) und durch das vorgebogene Metallwellrohr G1, gestreckte L = 1150 mm mit dem solaren Rücklauf verbinden (Punkt 2)

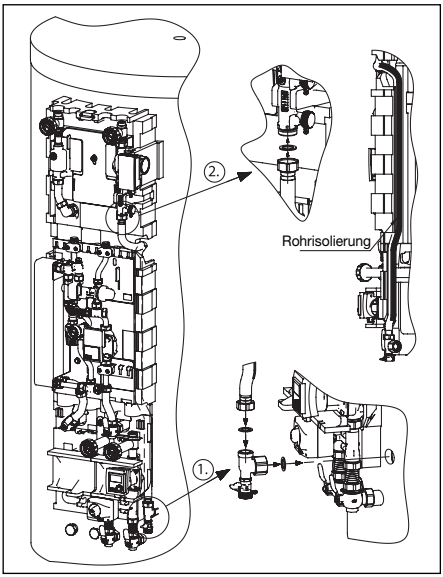


Abb. 20 Montage Metallwellrohr Solarrücklauf

– Es ist darauf zu achten, dass das Metallwellrohr zwischen Speicherwärmedämmung und Wärmedämmung der Heizkreis-gruppe verlegt ist und bei Aufbringen der Oberschale vollständig verdeckt wird (Abb. 21)

ACHTUNG

Die Wärmedämmung des Metallwellschlauchs muss sich zwischen Metallwellschlauch und Speicherwärmedämmung befinden um eventuelle Beschädigungen der Speicherwärmedämmung im Betrieb ausschließen zu können!
Ggf. Nachbiegen!

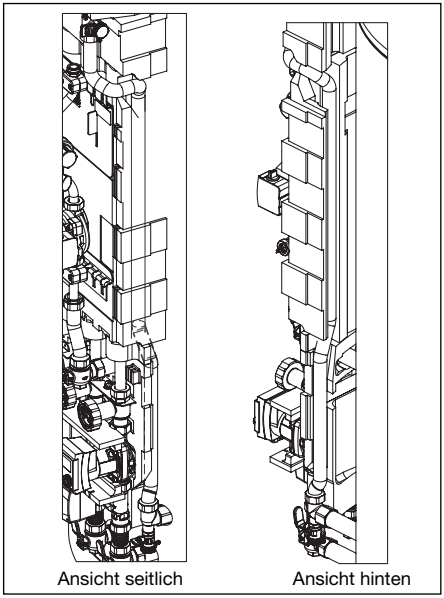


Abb. 21 Montage Metallwellrohr Solarrücklauf

– Die Frischwasserstation über den Speicher hinaus verrohren, bzw. Verrohrungsset Art.-Nr. 1383580 nutzen
– Den Regler in die Halterung der Solargruppe einhängen
– Die Kabel des Reglers in die hierfür vorgesehenen Kabelkanäle verlegen (Abb. 22)

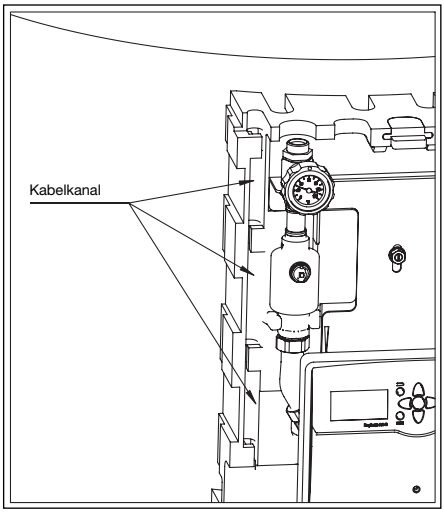


Abb. 22 Montage Kabelkanal

– Oberschale der Frischwasserstation anbringen
– Oberschale der Solargruppe anbringen
– Typenschild des Speichers rechts neben die Solarstation auf der Speicherisolierung anbringen (Das Typenschild befindet sich bei Auslieferung zwischen Isolierung und Speicherabdeckung!)

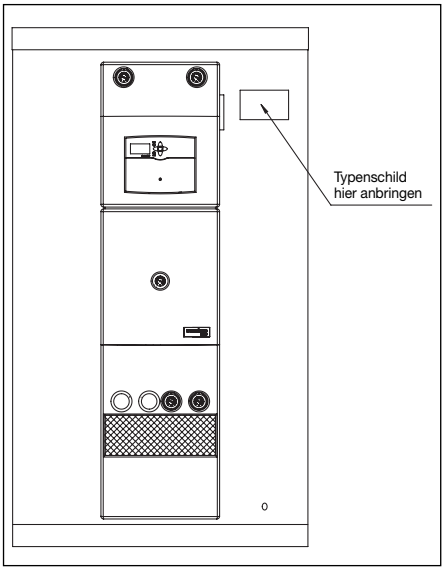


Abb. 23 Anbringung Typenschild

Sämtliche Leitungen müssen sorgfältig gedämmt werden, um die Wärmeverluste zu minimieren.

GEFAHR

Lebensgefahr und Sachschäden durch Fehlbedienung oder unvollständige Installation!
Deshalb:
Vor (Erst-) Inbetriebnahme müssen folgende Ist - Zustände überprüft werden:
– Kugelhähne der Solarstation ***müssen*** geöffnet sein!
– Sicherheitsventil mit Membranausdehnungsgefäß ***muss*** im Solarkreislauf installiert sein.

6 Technische Daten der Komponenten

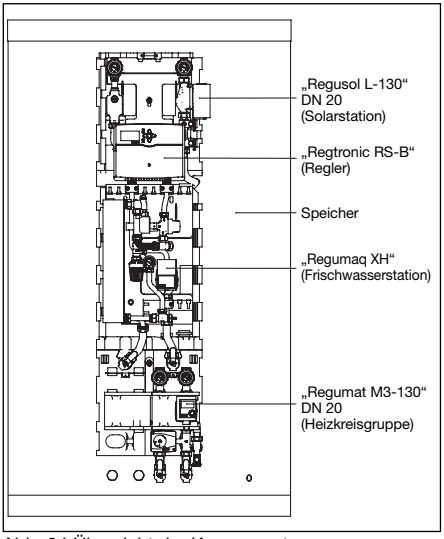


Abb. 24 Übersicht der Komponenten

Hinweis:
Weitere technische Daten und Diagramme unter den Datenblättern der Einzelkomponenten!

6.1 „Regumat M3-130“ DN 20 Heizkreisgruppe

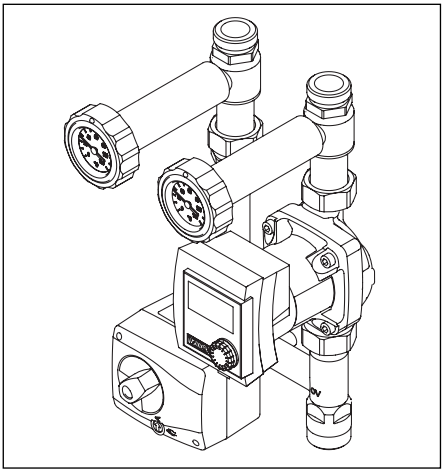


Abb. 25 „Regumat M3-130 DN20“

Sperrventil
Das Sperrventil verhindert bei abgeschalteter Pumpe die Eigenzirkulation des Heizungswassers.

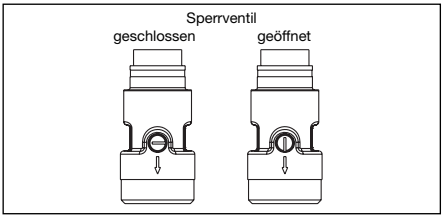


Abb. 26 Schwerkraftbremse

In Betriebsstellung ist das Sperrventil geschlossen, Durchfluss ist nur in Förderrichtung möglich.
Bei Inbetriebnahme bzw. zu Wartungsarbeiten (Füllen und Spülen) muss das Sperrventil geöffnet werden.

Stellmotor
Der Stellmotor NR230 des Dreiwegemischers wird durch den Oventrop Systemregler „Regtronic RS-B“ mit 3-Punkt Ausgang angesteuert.
Der Drehwinkel ist auf 90° begrenzt.
Bei Erreichen der Endanschläge wird der Stellmotor elektrisch abgeschaltet und ist stromlos. Bei Störungen des Regelsystems kann der Antrieb durch einen zusätzlichen Drehknopf auf Handbetrieb umgestellt werden.

⚠ WARNUNG

Der elektrische Anschluss hat gemäß den gesetzlichen Vorschriften zu erfolgen!

Dreipunktsteuerung:

ACHTUNG

Die Drehrichtung warm/kalt ist von der Einbaulage des Dreiwegemischers (Vor-/Rücklauf) abhängig.

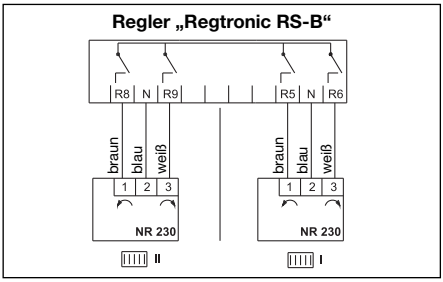


Abb. 27 Regler

Technische Daten:

Betriebsspannung	230 V 50 Hz
Aufnahmeleistung	2,5 W
Schutzklasse	II (schutzisoliert)
Drehmoment	5 Nm
Laufzeit	140 s
Umgebungstemperatur	0 °C bis + 50 °C
Anschlusskabellänge	2,2 m

Hinweis:
Bei abgeschalteter Umwälzpumpe ist in Heizungsanlagen abhängig vom Umtriebsdruck trotz Sperrventil eine Schwerkraftzirkulation möglich.
Sperrventile sind keine dichtschließenden Durchflussverhinderer.

Maße

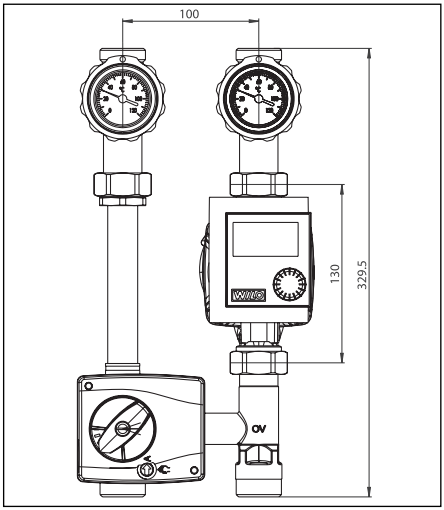
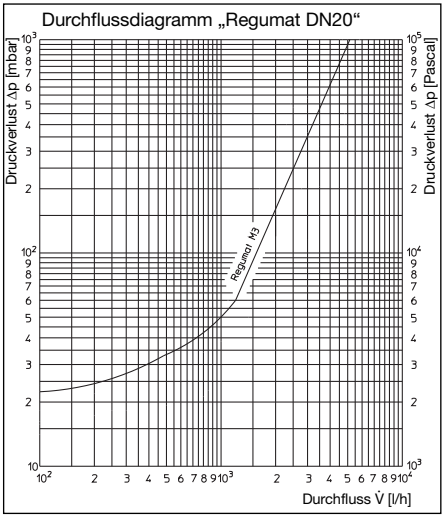


Abb. 28 Abmaße „Regumat M3-130 DN20“

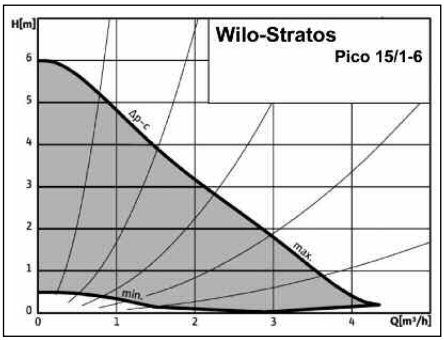
Technische Daten

Nenngröße	DN 20
max. Betriebstemperatur	120 °C
max. Betriebsdruck	10 bar PN10
kvs-Wert	5,1
Öffnungsdruck Sperrventil	20 mbar
Anschlüsse	G1 AG, flachdichtend
Baulänge Pumpe	130 mm, G1 AG

Druckverlustdiagramm



Pumpenkennlinien



6.2 „Regumaq XH“ Frischwasserstation

Die Frischwasserstation „Regumaq XH“ ist eine hydraulisch und thermostatisch geregelte Armaturenbaugruppe mit Plattenwärmeübertrager für die hygienische Trinkwassererwärmung im Durchlaufprinzip.

⚠ WARNUNG

Beim Bau einer Trinkwassererwärmungsanlage sind die gültigen Normen, die anerkannten Regeln der Technik und die örtlichen Vorschriften zu beachten! Insbesondere beim Betrieb einer Zirkulationsanlage sind die Hygienevorschriften nach DVGW Arbeitsblatt W551 zu beachten!

ACHTUNG

In der Frischwasserstation kommt ein kupfergelöteter Edelstahl- Plattenwärmeübertrager zum Einsatz. Beachten Sie das Dokument „Anforderungen an das Trinkwasser bei Einsatz von Oventrop Frischwasser- und Wohnungsstationen“ unter www.oventrop.com. Es liegt in der Verantwortung des Anlagenplaners und des Anlagenbetreibers, Wasserinhaltsstoffe und Faktoren, die die Korrosion und Steinbildung des Systems beeinflussen, zu berücksichtigen und für den konkreten Anwendungsfall zu bewerten.

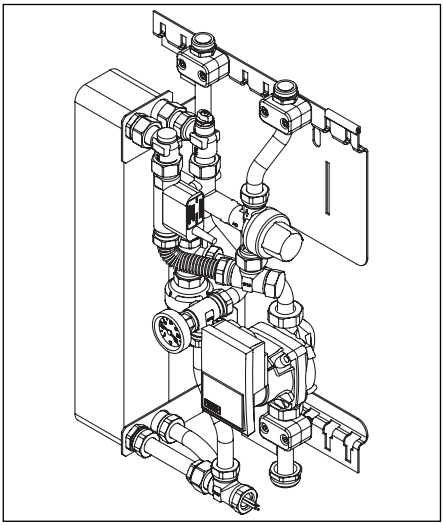


Abb. 29 Gesamtansicht „Regumaq XH“

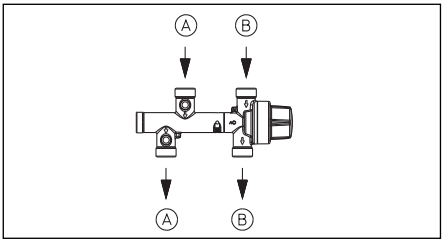


Abb. 30 Proportional-Mengenregler

A Speicherkreis Rücklauf
B Trinkwasserzulauf kalt

Primärkreislauf (Speicherkreis)

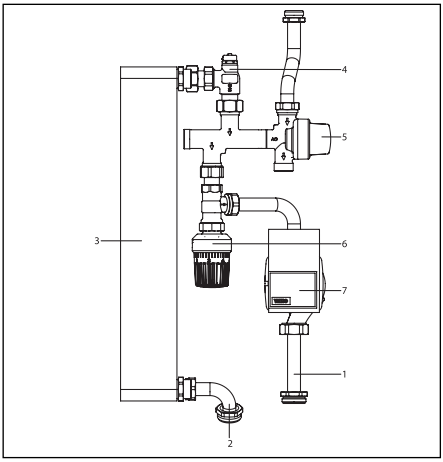


Abb. 31 Primärkreislauf

1 Rücklauf Speicher
2 Vorlauf Warmwasser Speicher
3 Plattenwärmeübertrager
4 Entlüftungsanschluss
5 Proportional-Mengenregler
6 Thermostatischer Temperaturregler
7 Pumpe (Speicherkreis)

Sekundärkreislauf (Trinkwasserkreis)

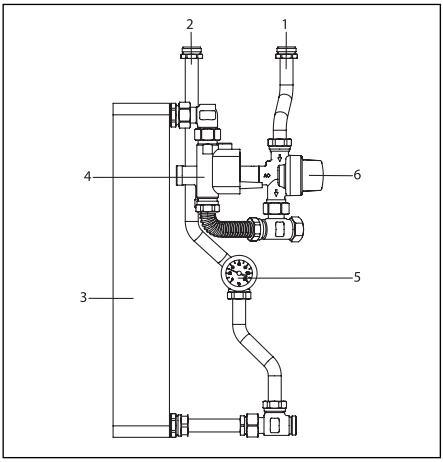


Abb. 32 Sekundärkreislauf

1 Trinkwasserzulauf
2 Trinkwasserabgang Warm
3 Plattenwärmeübertrager
4 Strömungsschalter
5 Zapftemperatur-Anzeige
6 Proportional-Mengenregler

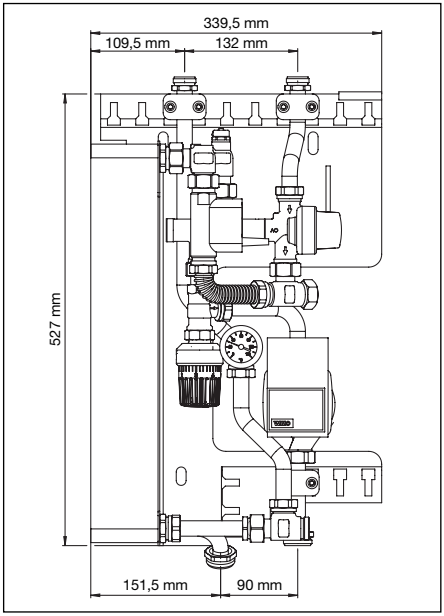


Abb. 33 Abmaße, Angaben in mm

Einstellung Temperaturregler
Die Werkseinstellung des Temperaturreglers ist Stellung 2. Dies entspricht einer Trinkwassertemperatur von ca. 45 °C. Die Einstellung kann an die gewünschte Trinkwassertemperatur angepasst werden.

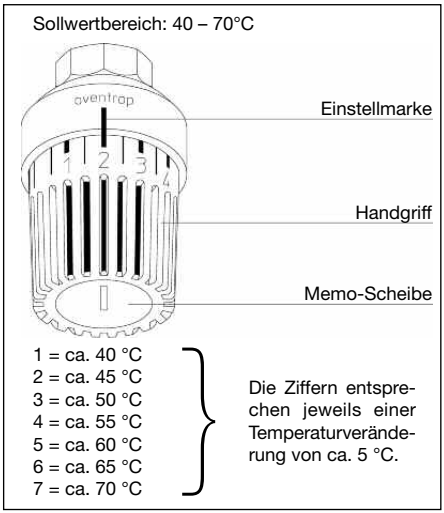


Abb. 34 Temperaturregler

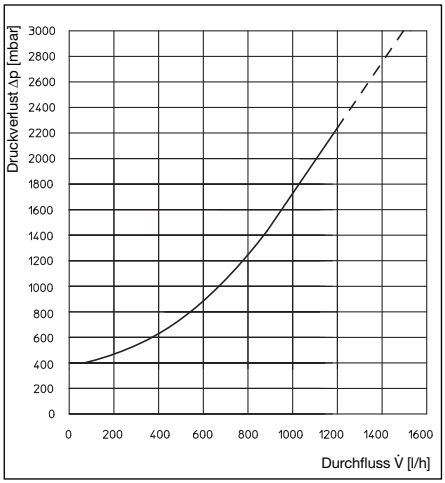
Technische Daten

Technische Daten allgemein	
Max. Betriebsdruck (Primärseite)	6 bar
Max. Betriebsdruck (Sekundärseite)	10 bar
Max. Betriebstemperatur	95 °C
Max. Förderhöhe (Primärseite)	6 m
Plattenanzahl Wärmetauscher	30
Kv (Primärseite)	1,85
Kv (Sekundärseite - Zapfbetrieb)	0,76
Kv (Sekundärseite - Zirkulationsbetrieb)	0,96
Mindestkaltwasserdruck (bei Nennzapfleistung 20 l/min)	3,5 bar*
Medium	
Primärseite	Heizungswasser
Sekundärseite	Trinkwasser
Materialien	
Armaturen	Messing/entzinkungsbeständiges Messing
Dichtungen	EPDM / AFREE 400
Isolierung	EPP
Rohre	Edelstahl 1.4401 / 1.4404
Wärmeübertrager Edelstahl, kupfergelötet	Edelstahl 1.4401 Lot Kupfer
Wärmeübertrager Edelstahl, nickelgelötet	Edelstahl 1.4401 Lot Nickel
Anschlüsse	
Anschlüsse (Primärseite)	G1 flachdichtend
Anschlüsse (Sekundärseite)	G¾ flachdichtend

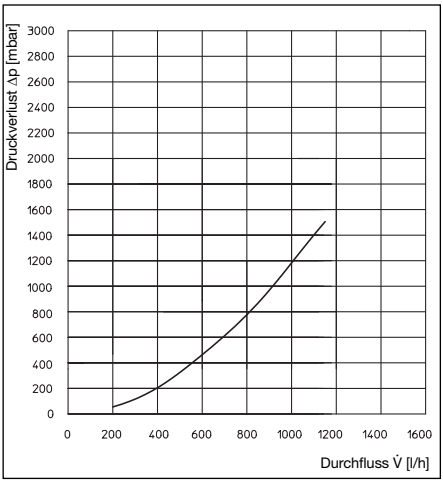
* bei größeren Zapfleistungen muss der Druck entsprechend erhöht werden

Durchflussdiagramme

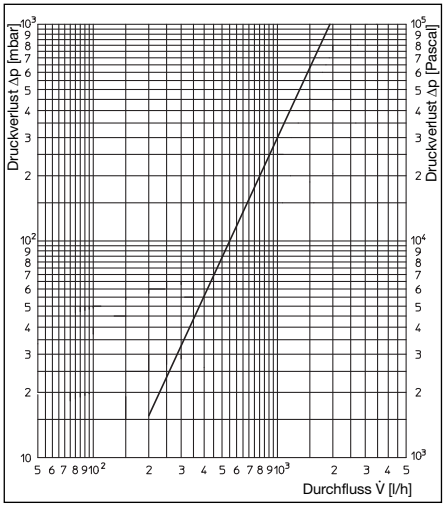
Druckverlust Sekundärkreis (Trinkwasserkreis) bei Trinkwasserzapfung



Druckverlust Sekundärkreis (Trinkwasserkreis) bei Zirkulationsbetrieb

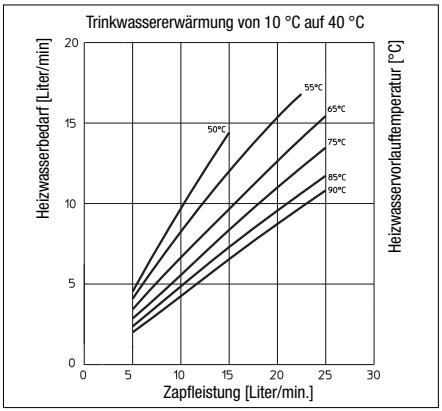


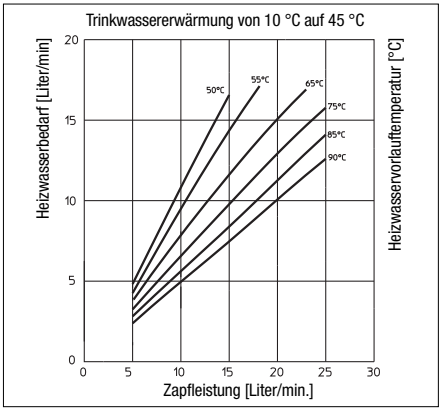
Druckverlust Primärkreis (Speicherkreis) bei maximaler Trinkwasserzapfung

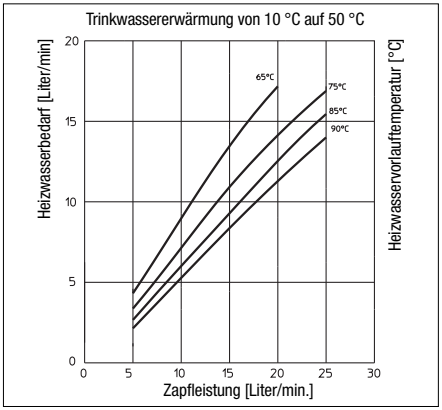


Heizwasserbedarf / Rücklauftemperatur

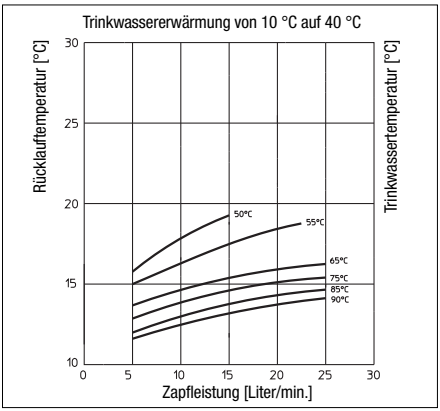
Heizwasserbedarf

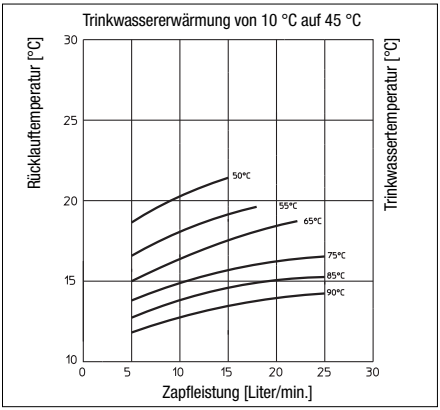


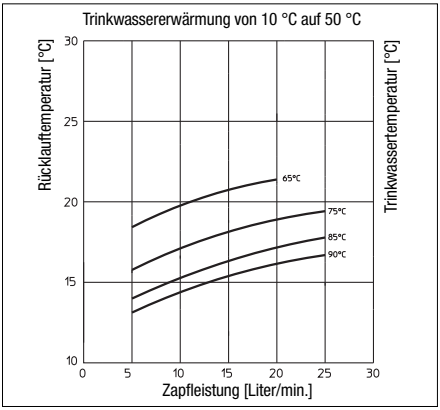




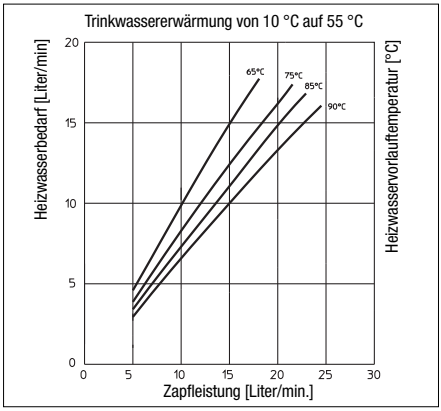
Rücklauftemperatur

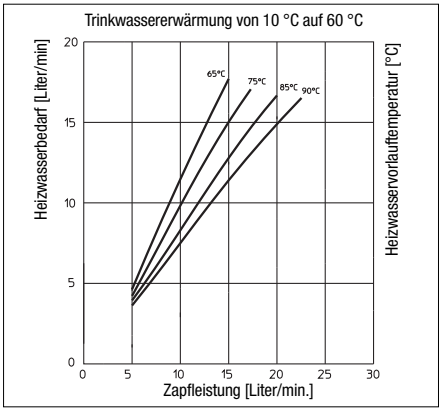




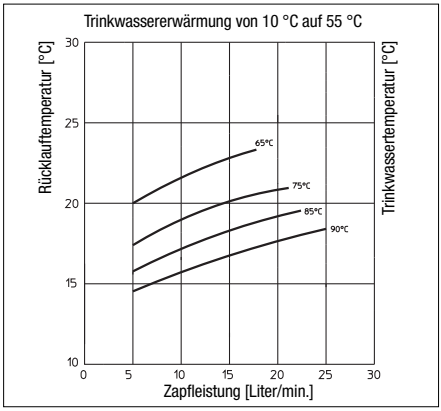


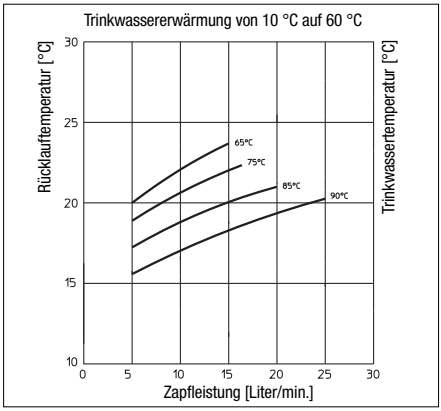
Heizwasserbedarf



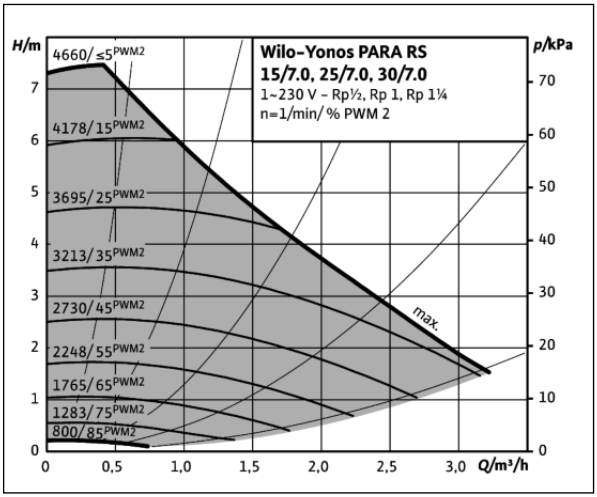


Rücklauftemperatur





Pumpenkennlinie
Wilo Yonos PARA RS 15/7



6.3 „Regusol L-130“ DN 20 Solarstation

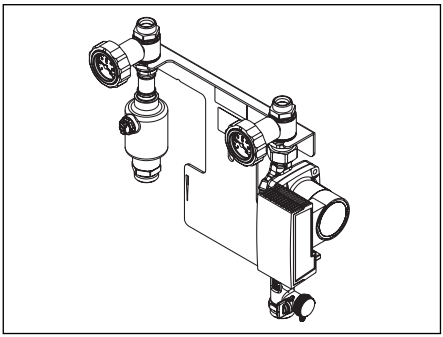


Abb. 35 „Regusol L 130 DN20“

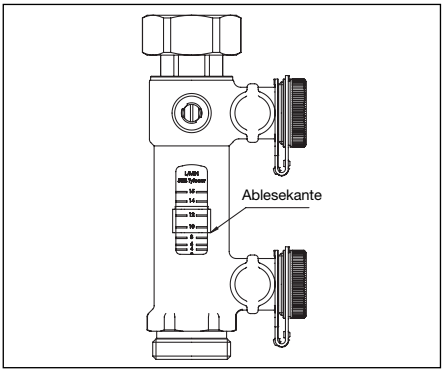


Abb. 36 Abgleichventil

Technische Daten

max. Betriebstemperatur	120°C
max. Betriebsdruck	6 bar PN10
Sicherheitsventil	6 bar
Durchflussbereich	2-15 l/min
Öffnungsdruck Sperrventile	20 mbar

Anschluss
G¾ für Klemmringverschraubung
G¾ flachdichtend zum Speicher

Maße:

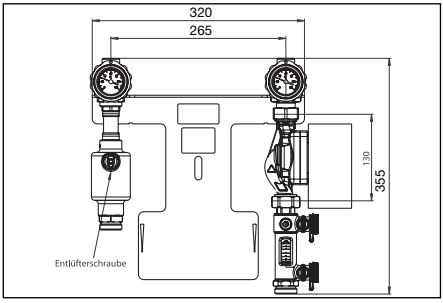


Abb. 37 Maße „Regusol L 130 DN20“

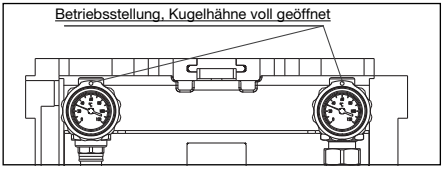


Abb. 38 Befüllen- und Spülen der Anlage, Betriebsstellung

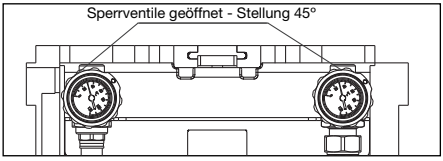


Abb. 39 Sperrventile geöffnet

⚠ GEFAHR

Lebensgefahr!
Im Betrieb **müssen** die Kugelhähne der Solarstation geöffnet sein.

Der Kollektor muss vor unzulässigem Überdruck durch ein Sicherheitsventil und ein Membranausdehnungsgefäß (MAG) gesichert werden.
(Siehe auch Bedienungsanleitung „Aufbau, Inbetriebnahme und Wartung Thermischer Solaranlagen“ auf www.oventrop.com)

Inbetriebnahme Solarstation

⚠ WARNUNG

- Anlage niemals bei sehr hohen Kollektortemperaturen mit Solarflüssigkeit befüllen! Bei Sonneneinstrahlung Kollektoren vorher abdecken und abkühlen lassen!
- Bei hohen Temperaturen im Solarkreis (Kollektoren > 60°C) besteht Verbrühungsgefahr! Bei hoher Sonneneinstrahlung kann es zu Dampfbildung in den Kollektoren kommen.
- Korrekten Vordruck des Ausdehungsgefäßes prüfen.

Solarkreis spülen
- Solarkreis mit Wärmeträgermedium spülen
- Befüllpumpe nicht im Trockenlauf betreiben
- Filter verwenden (ist in den meisten mobilen Befüllstationen bereits integriert)

Mobile Befüllstation
Eine mobile Befüllstation (Art.-Nr. 1364240) ermöglicht die schnelle und saubere Spülung und Befüllung thermischer Solaranlagen - somit wird eine prozesssichere Entlüftung gewährt.
Die kompakte Einheit aus Pumpe, Behälter für Solarflüssigkeit, Filter und Schlauchhalterung ist auf einem robusten Transportwagen montiert und dadurch leicht zu transportieren.

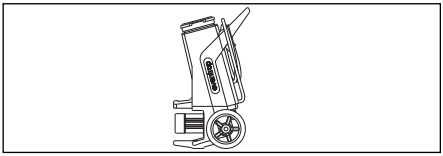


Abb. 40 Mobile Befüllstation

Dichtigkeit prüfen
- Sichtprüfung für alle Verbindungsstellen durchführen
- Prüfdruck 4-5 bar
- Druckschwankungen auch durch wechselnde Sonneneinstrahlung möglich

Solarkreis befüllen und Entlüften
- Kugelhähne und Sperrventile in Betriebsstellung (Abb. 38)
- Beide Füll- und Entleerungskugelhähne am Abgleichventil öffnen
- Kugelhahn zur Einregulierung am Durchflussmesser muss vollständig geschlossen sein (Schlitz waagerecht)
- Befüllpumpe einschalten
- Befüllpumpe so lange betreiben, bis keine Luftblasen mehr im Flüssigkeitsbehälter sind. Je nach Anlage kann dies 30-90 min dauern
- Bei Erreichen des gewünschten Anlagendrucks die Füll- und Entleerungskugelhähne am Abgleichventil schließen.

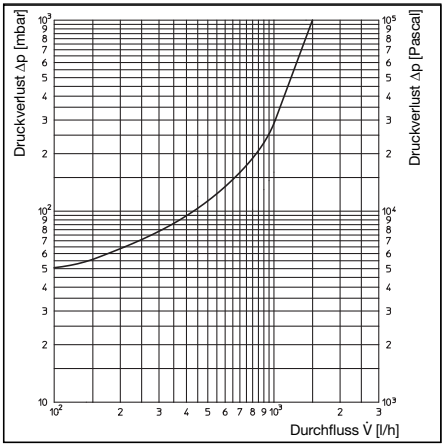
Anlagendruck einstellen
- Vorraussetzung: Korrekter Vordruck des Mengenausdehnungsgefäß (MAG) bei Installation. Bei befüllter Anlage kann der Vordruck nur ermittelt werden, wenn das MAG abgesperrt und drucklos ist.
- Durch Luftabscheidung innerhalb einiger Tage nach der Befüllung kann der Anlagendruck wieder absinken.

Tipp
Anlagendruck beim Befüllen ca. 0,1 - 0,2 bar höher einstellen als Tabellenwert.

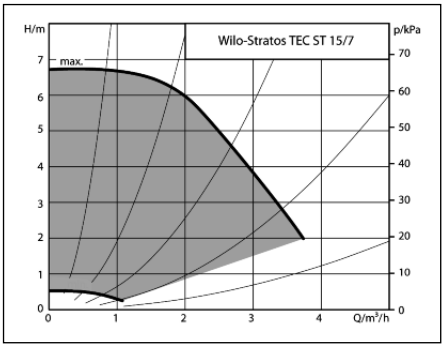
Anlagenhöhe [mm]	Vordruck MAG [mbar]	Anlagendruck* [bar]
5	0,9-1,0	1,2-1,3
8	1,2	1,5
10	1,7	2,0
15	2,3	2,6
20	2,8	3,1
*bei Umgebungstemperatur des Wärmeträgers (ca. 20° C)		

Volumenstrom einstellen
Der Volumenstrom wird automatisch geregelt.

Durchflussdiagramm:



Pumpenkennlinie:



6.4 „Regtronic RS-B“ Systemregler
Alle wichtigen Informationen und Daten des Reglers finden Sie in der beiliegenden Reglerbeschreibung 138 35 65 81 „Regtronic RM-B/RS-B“.

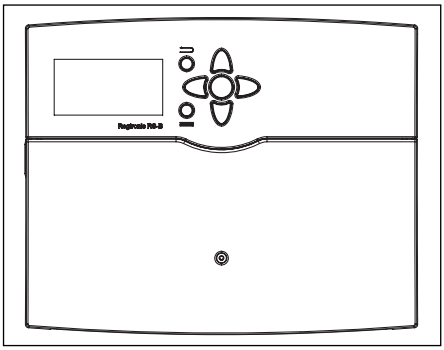


Abb. 41 „Regtronic RS-B“ Systemregler

6.5 Speicher

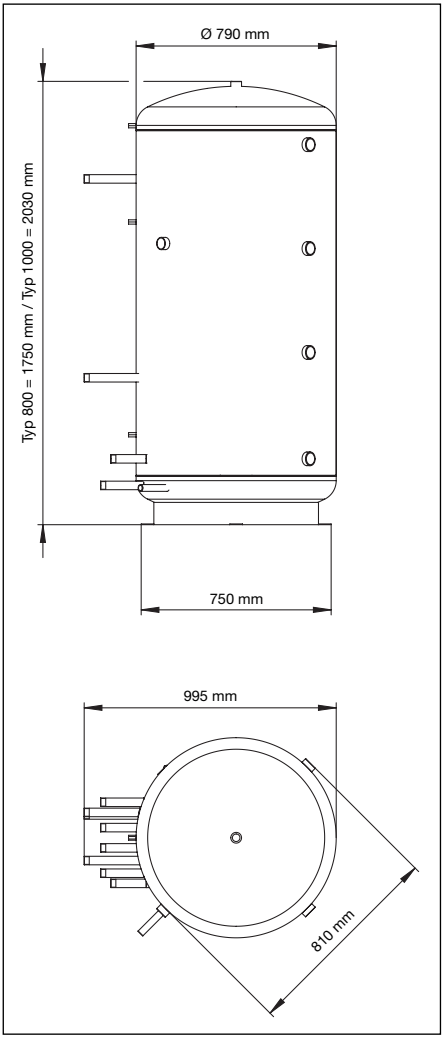


Abb. 42 Abmaße Speicher ohne Isolierung

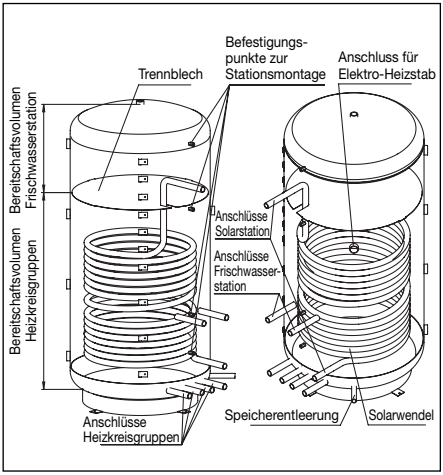


Abb. 43 Funktionsschnitt

Wärmedämmung Speicher

Material:	PES-Fasern, Rohweiß
Materialstärke:	140 mm
Brandklasse:	DIN 4102 B1
Wärmeleitfähigkeit:	λ= 0,04 [W/(m*K)]
Schmelzpunkt:	
· Füllfaseranteil:	ca. 250 °C
· Schmelzfaseranteil:	ca. 110 °C
· Erweichungspunkt:	ab 90 °C (beginnend)

Ummantelung Isolierung

Material:	PVC-Weichfolie
Materialstärke:	0,4 mm
Brandklasse:	DIN 4102 B2

Deckel Isolierung

Material:	PS
Brandklasse:	DIN 4102 B2

Technische Daten Speicher:

Bereitschaftsvolumen:	Typ 800 / Typ 1000
– für Frischwasserstation:	200 l / 250 l
Solarwendel:	3,1 m² / 3,4 m²
zulässiger Betriebsdruck:	3 bar
zulässige Betriebstemperatur:	95 °C
Geometrie Stationsstutzen:	G1 AG
Geometrie Beladestutzen:	G 1 ½ IG
Gewicht:	186 kg / 198,5 kg

Zwei integrierte Einschichteinrichtungen:

1. Rücklauf Heizkreise
2. Rücklauf Frischwasserstation

7 Zubehör

7.1 „Regucor WHS“ Erweiterung Heizkreis

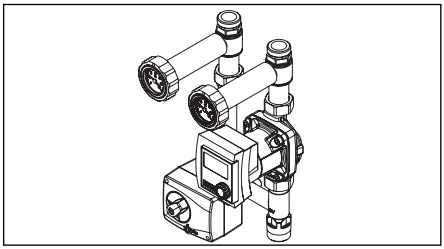


Abb. 44 „Regumat M3 130 DN 20“ Heizkreis, Pumpe Wilo Stratos Pico 25/1-6, mit Dreiwegemischer und Stellmotor (138 35 70).

7.2 „Regumaq XH“ Trinkwasserzirklulations-Set

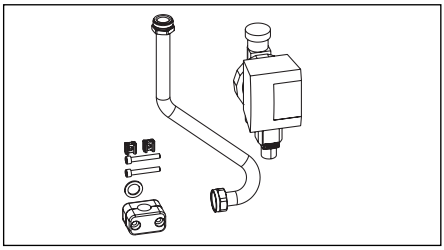


Abb. 45 Anschlusset mit Zirkulationspumpe Wilo Star Z Nova C und Zeitschaltuhr zur Erweiterung der „Regumaq XH“ Trinkwasserstation um eine Trinkwasserzirkulation (138 10 47 **mit** Zirkulationspumpe, 1381049 **ohne** Zirkulationspumpe).

7.3 Verrohrungs - Set

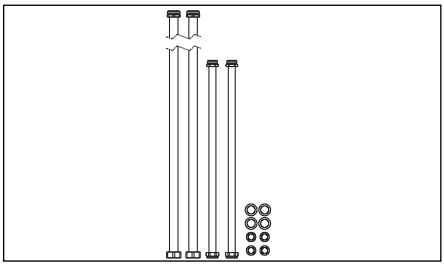


Abb. 46 Für die Frischwasserstation und den ersten Heizkreis (1383580).

7.4 Verrohrungs - Set Erweiterung

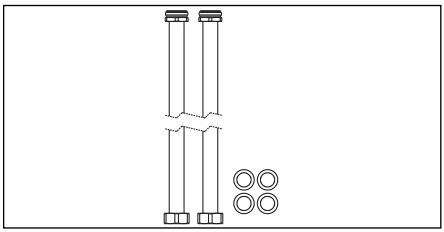


Abb. 47 Für den zweiten Heizkreis (1383581).

7.5 Sicherheitsgruppe Solar

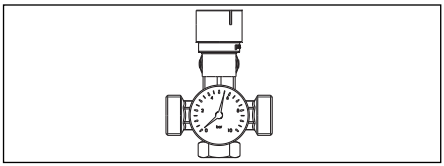


Abb. 48 Zur Strangmontage mit Sicherheitsventil 6 bar für „Regusol“ Klemmringverschraubung (136 42 48).

7.6 Elektrischer Rohranleger

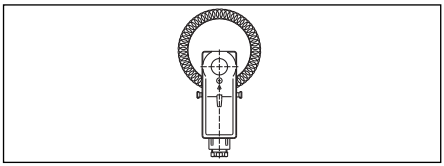


Abb. 49 Elektrischer Rohranleger mit verdeckter Temperatureinstellung, Regelbereich 20-90°C (114 30 00).

7.7 „Tri-M TR“ Dreiwege-Mischventil PN 16

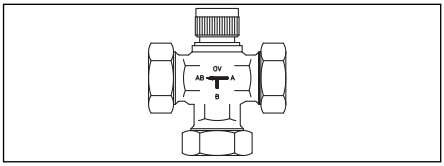


Abb. 50 Drei-Wege-Ventil für Zwei-Zonen-Beladung (1131706).

7.8 „Tri-D TR“ Dreiwege-Verteilventil PN 16

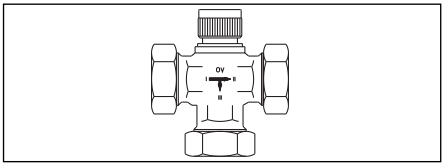


Abb. 51 Drei-Wege-Ventil für Zwei-Zonen-Beladung (1130206).

7.9 Stellantrieb

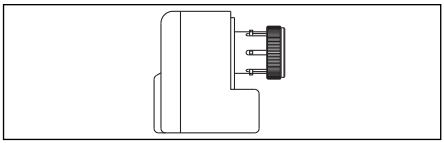


Abb. 52 Stellantrieb zur Ansteuerung eines Dreiwegeventils (1012710).

7.10 Isolierkappen

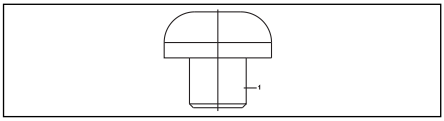


Abb. 53 Isolierkappe für G 1 ½ Anschlussmuffen (1389001).

7.11 Verlängerung für Beladestutzen

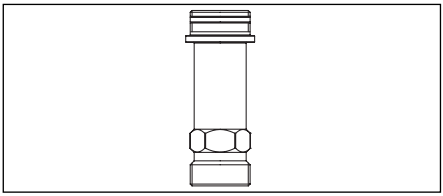


Abb. 54 Verlängerung für G 1 ½ Anschlussmuffen (1383593).

7.12 Verlängerung für Elektroheizstab

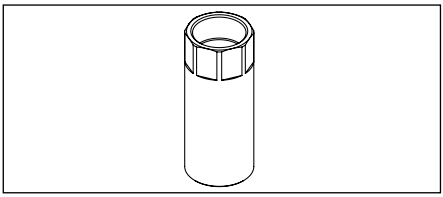


Abb. 55 Verlängerung für R 1 ½ Anschlussmuffe (1383592).

7.13 Elektroheizstab

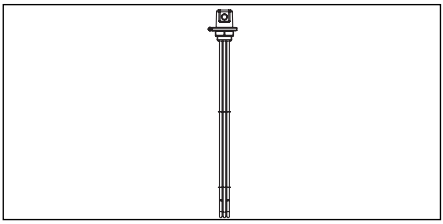


Abb. 56 9 kW Elektroheizstab zur elektronischen Heizung des Speicherwassers (1383590)

7.14 Regler- und Begrenzerkombination für Elekroheizstab

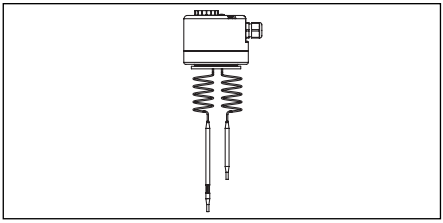


Abb. 57 Regler- und Begrenzerkombination zur autarken Regelung und Begrenzung des Elektroheizstabs (1383591).

8 Wartung und Pflege

8.1 Wartung

Um einen einwandfreien Betrieb der Anlage zu gewährleisten, wird eine Wartung mindestens einmal pro Jahr durch einen Heizungsfachbetrieb empfohlen.

Folgende Arbeiten sollten dabei durchgeführt werden:
- Alle Armaturen und Verschraubungen auf Dichtheit überprüfen

9 Demontage und Entsorgung

⚠ WARNUNG

Verletzungsgefahr bei unzureichender Qualifikation!
Unsachgemäßer Umgang kann zu erheblichen Personen- und Sachschäden führen.

Deshalb:
- Die Demontage darf nur von Fachpersonal ausgeführt werden
- Arbeiten an der elektrischen Anlage dürfen nur von Elektrofachkräften ausgeführt werden

9.1 Demontage

⚠ WARNUNG

Verletzungsgefahr bei unsachgemäßer Demontage!
Gespeicherte Restenergien, kantige Bauteile, Spitzen und Ecken am und im Gerät können Verletzungen verursachen.

Deshalb:
- Vor Beginn der Arbeiten für ausreichend Platz sorgen
- Mit offenen, scharfkantigen Bauteilen vorsichtig umgehen

Auf Ordnung und Sauberkeit am Arbeitsplatz achten! Lose umher liegende Bauteile und Werkzeuge sind Unfallquellen. Bauteile fachgerecht demontieren.

Vor Beginn der Demontage:
- Gerät ausschalten und gegen Wiedereinschalten sichern
- Gesamte Energieversorgung vom Gerät physisch trennen, gespeicherte Restenergien entladen
- Betriebs- und Hilfsstoffe sowie restliche Verarbeitungsmaterialien entfernen und umweltgerecht entsorgen

9.2 Entsorgung

Sofern keine Rücknahme- oder Entsorgungsvereinbarung getroffen wurde, zerlegte Bestandteile der Wiederverwertung zuführen:
- Metalle verschrotten
- Kunststoffelemente zum Recycling geben
- Übrige Komponenten nach Materialbeschaffenheit sortiert entsorgen

ACHTUNG

Umweltschäden bei falscher Entsorgung!
Elektroschrott, Elektronikkomponenten, Schmier- und andere Hilfsstoffe unterliegen der Sondermüllbehandlung und dürfen nur von zugelassenen Fachbetrieben entsorgt werden!

Die örtliche Kommunalbehörde oder spezielle Entsorgungs-Fachbetriebe geben Auskunft zur umweltgerechten Entsorgung.

10 Allgemeine Bedingungen für Verkauf und Lieferung

Es gelten die zum Zeitpunkt der Lieferung gültigen allgemeinen Bedingungen für Verkauf und Lieferung von Oventrop.

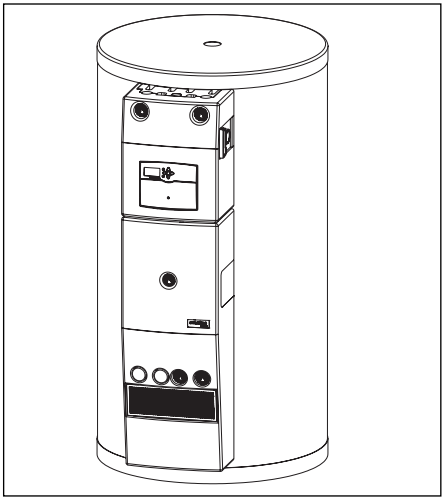
“Regucor WHS”
Energy storage centre

Installation and operating instructions for the specialised installer

Read installation and operating instructions in their entirety before installing the energy storage centre! Installation, initial operation, service and maintenance must only be carried out by qualified tradesmen!
The installation and operating instructions, as well as other valid documents must remain with the user of the system!

Content

1 General information 23
2 Safety notes 24
3 Transport, storage and packaging 24
4 Technical data 24
5 Installation 26
6 Technical data of the components 33
7 Accessories 43
8 Maintenance.....44
9 Removal and disposal……..... 44
10 Warranty 44



Illustr. 1 “Regucor WHS”

1 General information

1.1 Information regarding installation and operating instructions

These installation and operating instructions serve the installer to install the energy storage centre professionally and to put it into operation.
Other valid documents – manuals of all system components as well as valid technical rules – must be observed.

1.2 Keeping of documents

These installation and operating instructions should be kept by the user of the system.

1.3 Copyright

The installation and operating instructions are copyrighted.

1.4 Symbol explanation

Safety guidelines are displayed by symbols. These guidelines are to be observed to avoid accidents, damage to property and malfunctions.

DANGER DANGER indicates an imminent dangerous situation which will lead to death or serious injury if the safety guidelines are not observed.

WARNING WARNING indicates a possible dangerous situation which may lead to death or serious injury if the safety guidelines are not observed.

CAUTION CAUTION indicates a possible dangerous situation which may lead to minor or moderate injury if the safety guidelines are not observed.

NOTICE NOTICE indicates a possible damage to property which may occur if the safety guidelines are not observed.

2 Safety notes

2.1 Correct use

Safety in operation is only guaranteed if the energy storage centre is used correctly.

Any use of the energy storage centre outside the above applications will be considered as non-compliant and misuse. Claims of any kind against the manufacturer and/or his authorised representatives, due to damages caused by incorrect use cannot be accepted.
The observance of the installation and operating instructions is part of the compliance terms.

2.2 Possible dangers at the installation location or during transport

The case of an external fire was not taken into consideration when constructing the energy storage centre.

⚠ DANGER

Risk of scalding!
Water pipes and the water drawn from the tap can become very hot (>60°C).
For this reason:
- Always wear protective clothing and safety gloves when working near hot components.
- Before starting work, please make sure that all components have cooled down to ambient temperatures.
- If necessary preventive measures against scalding are to be taken on site.

3 Transport, storage and packaging

3.1 Transport inspection

Upon receipt check delivery for any damages caused during transit.
Any damage must be reported immediately upon receipt.

3.2 Storage

The energy storage centre must only be stored under the following conditions:
- Do not store in open air, keep dry and free from dust.
- Do not expose to aggressive fluids or heat sources.
- Protect from direct sunlight and mechanical agitation.
- Storage temperature: –20 °C up to +60 °C, max. relative humidity of air: 95 %

3.3 Packaging

Packaging material is to be disposed of environmentally friendly.

3.4 Installation, initial operation and maintenance

NOTICE

A copper or nickel brazed stainless steel heat exchanger is part of the energy storage centre “Regucor WHS”.
The specifying engineer and the user of the system are responsible to incorporate and evaluate substances and other factors in the water, which influence corrosion and the formation of calcium deposits.
Please observe the document “Demands on potable water when using Oventrop fresh water and dwelling stations” at www.oventrop.com!

⚠ DANGER

Danger to life!
During operation, the ball valves of the solar station **must** be opened.

⚠ DANGER

Danger to life!
Improper installation may lead to extensive injuries to persons and damage to property.
For this reason:
Installation, initial operation and maintenance must only be carried out by qualified tradesmen. (VDE, EN 12975 & DIN 4807)

⚠ WARNING

The pipework has to be bled completely and be flushed thoroughly to guarantee a perfect operation of the system.
Suitable components (deaerators, etc.) must be installed if required.
The corresponding system pressure must be guaranteed!

3.5 Spare parts

⚠ WARNING

Risk of injury!
Wrong or faulty spare parts may not only lead to damages, malfunctions or a total loss of power but may also impair safety.
For this reason:
Only use original spare parts of the manufacturer.

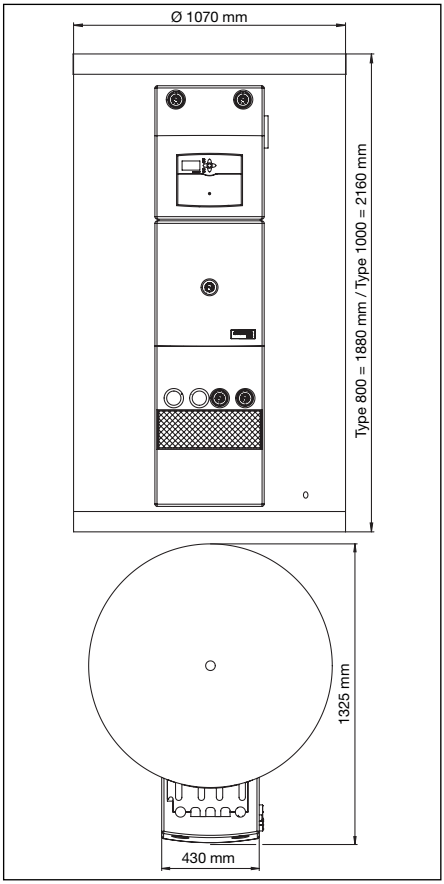
4 Technical data

Fluid: Non-aggressive fluids (e.g. water and suitable water and glycol mixtures according to VDI 2035). Not suitable for steam, oily and aggressive fluids or swimming pool water.

⚠ DANGER

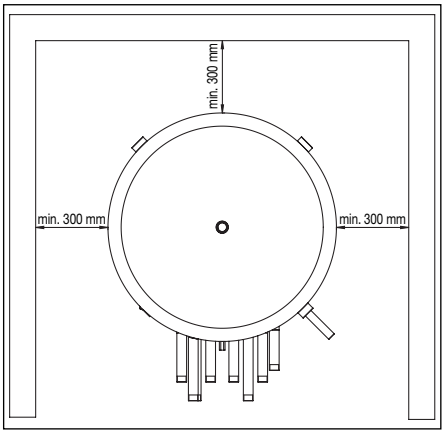
Suitable measures (e.g. safety valves) have to be taken to ensure that the maximum operating pressures and maximum and minimum operating temperatures are not exceeded or undercut.

4.1 Dimensions

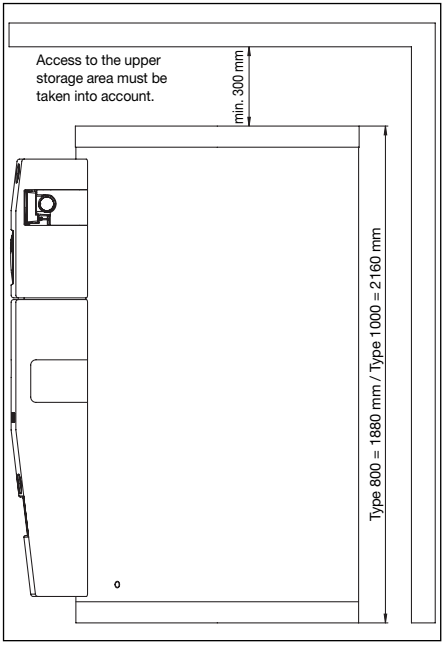


Illustr. 2 Dimensions

4.2 Installation dimensions



Illustr. 3 Installation dimensions



Illustr. 4 Installation dimensions

WARNING

The energy storage centre must be set up on a level surface.

NOTICE

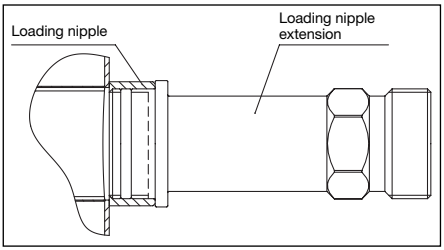
Collection basin / Floor drainage
When installing the storage cylinder, the use of a collection basin is prescribed, especially for central roof heating systems. When installing the storage cylinder in cellars, the latter must have drainage for escaping water.

5 Installation

- Remove the storage cylinder insulation.
- Remove the sealing plugs from the required loading nipples.
- Firmly screw the loading nipple extensions with the self-sealing side into the required loading nipples until stop.

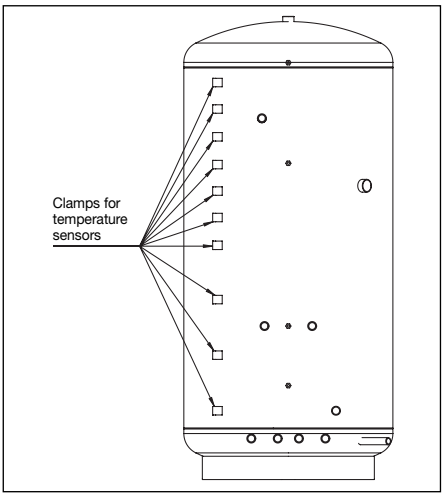
NOTICE

The extensions (item no. 138 35 93) have to be used if more than two loading nipples are required!



Illustr. 5 Mounted extension for loading nipple

- First of all, cleanly cut the insulation jacket along the perforation at the required points and remove the cut-outs.
- Position temperature sensors for the storage cylinder to the corresponding clamps.
- Align the insulation jacket at the storage cylinder connections and fit the insulation.



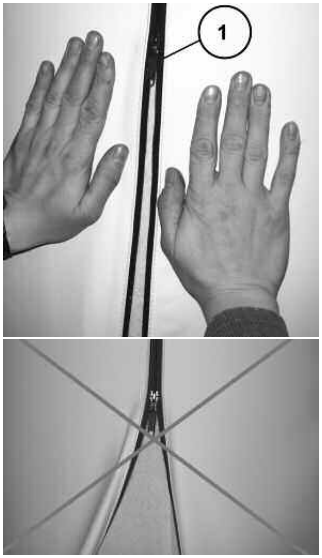
Illustr. 6 Storage cylinder with dismantled insulation

Notes regarding installation of the insulation jacket

The insulation must only be fitted under tempered conditions (20-22 °C)!

- Squeeze insulation towards the zip-fastener!
- The zip-fastener (1) must be closed by a second person!

NOTICE

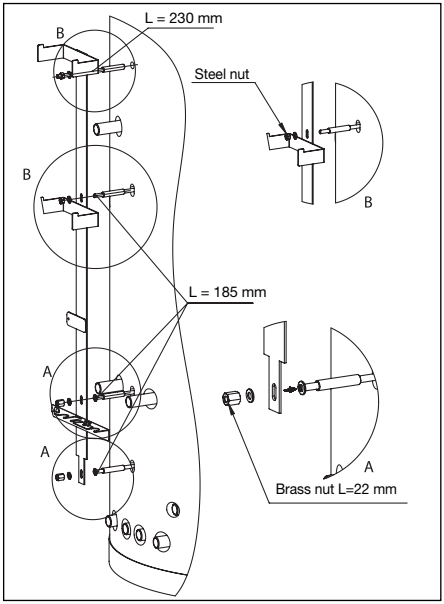


Illustr 7. Installation of insulation jacket.

NOTICE

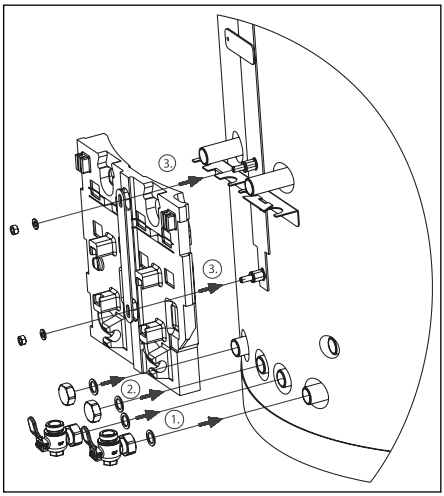
Never draw together the insulation jacket with the help of the zip-fastener as this may cause irreparable damage to the jacket!

- Mount bracket assembly (illustr. 8)
- Screw the threaded rods into the nuts welded onto the storage cylinder (Attention: The rod with a length of L = 230 mm has to be screwed into the upper nut!) Screw the 3 rods with a length of L = 185 mm into the lower three nuts!) (illustr. 8).
- Slip on the distance sleeves.
- Mount the bracket and fix it with the help of the discs and nuts (Attention: Use the brass nuts with a length of L = 22 mm for the two lower pins and the steel nuts for the upper pins!).



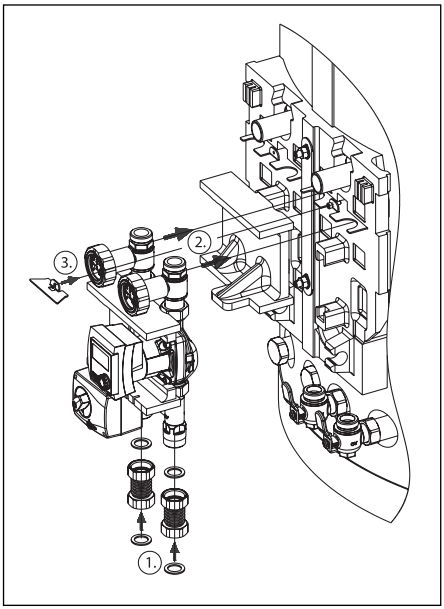
Illustr. 8 Installation of bracket assembly

- The ball valves G1 with seals must be connected at the right hand side with the storage cylinder (illustr. 9 point 1).
- Fit caps G1 with seals at the left hand side with the storage cylinder (point 2).
- Remove locking plate from the bracket.
- Push rear insulation shell of the heating circuit group over the bracket and fix it with the help of the clamping plate, washers and nuts (point 3).



Illustr. 9 Installation of ball valves and insulation heating circuits

- The corrugated metal pipes with seals and a length of L = 45 mm must be connected with the heating circuit group (illustr. 10 point 1). Suspend group into the bracket (point 2), mount locking plate and fix it to the bracket (point 3).
- Connect the corrugated metal pipes to the ball valves.
- Close the ball valves.

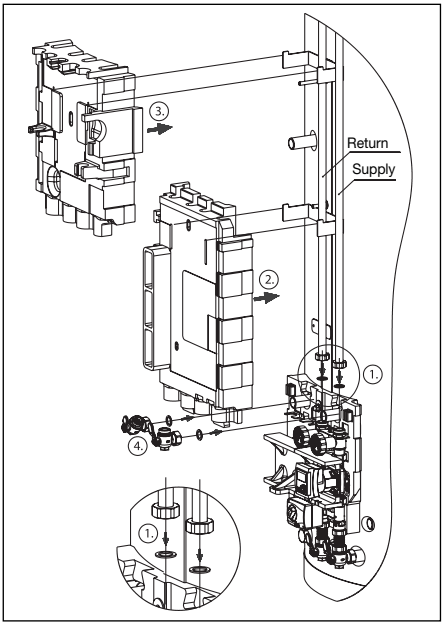


Illustr. 10 Installation of heating circuit group

NOTICE

The heating circuit connections of the storage cylinder must **only** be used for the connection of the heating circuit groups!

– Realise piping of supply and return starting from the heating circuit group (illustr. 11 point 1) or use connection set item no. 138 35 80 and item no. 138 35 81 for an optional second heating circuit. Please ensure correct connection of supply and return.
– Push rear insulation shell of the fresh water station (point 2) and of the solar group (point 3) onto the bracket.
– Firmly screw ball valves for the connection of the fresh water station to the storage cylinder (points 4).



Illustr. 11 Installation of thermal insulations

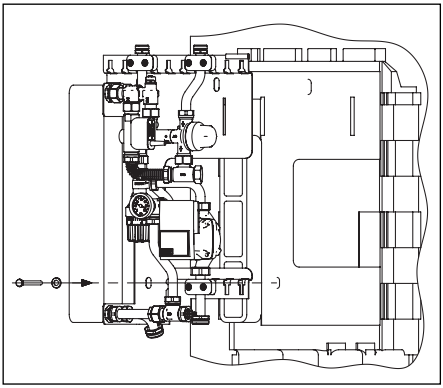
Connection set item no. 138 35 80 for the connection of a heating circuit to the fresh water station.

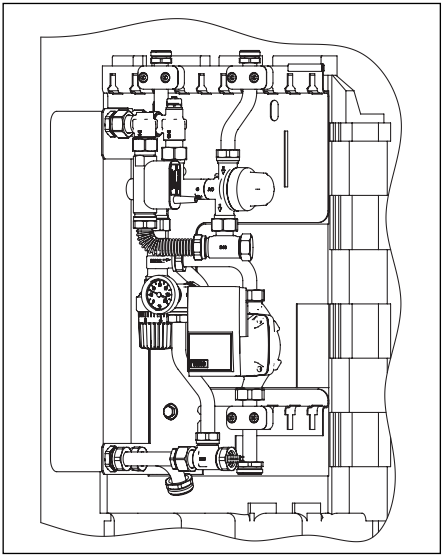
Consisting of:
2x stainless steel pipe (L = 1260 mm)
2x stainless steel pipe (L = 500 mm)
4x ring gasket for G 1
4x ring gasket for G ¾

Connection set item no. 138 35 81 for the connection of the second heating circuit item no. 138 35 81.

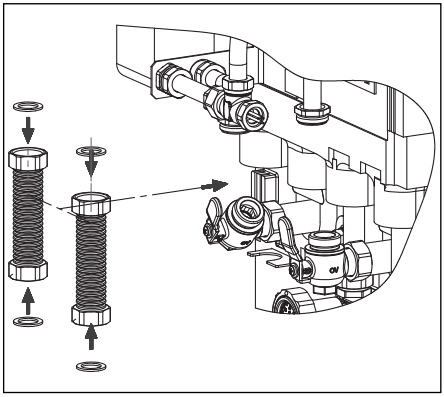
Consisting of:
2x stainless steel pipe (L = 1260 mm)
4x ring gasket for G 1

– Suspend fresh water station into the bracket (illustr.12 / 13)
– Secure against twisting with a safety screw and washer.

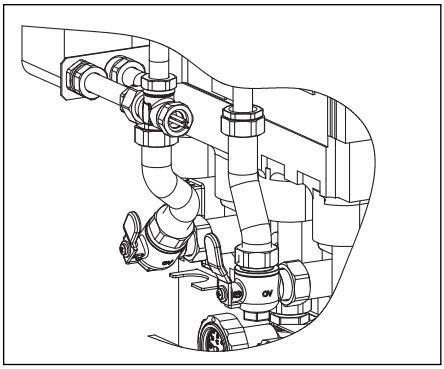

Illustr. 12 Installation of fresh water station


Illustr. 13 Installation of fresh water station

– Connect fresh water station to ball valves via the corrugated metal pipes G1 with a length of L = 110 mm.

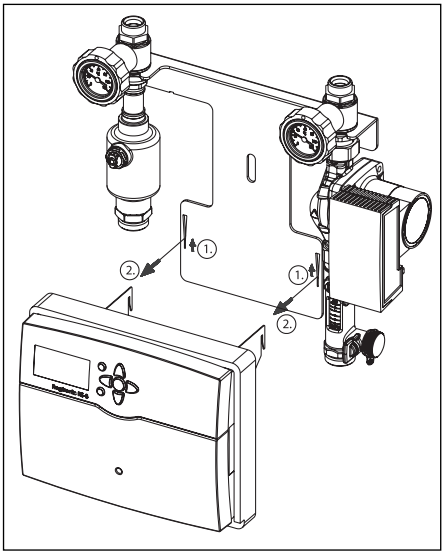


Illustr. 14 Installation of corrugated metal pipes



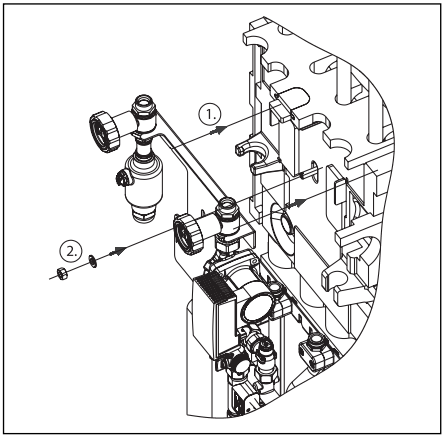
Illustr. 15 Installation of corrugated metal pipes

– Separate controller from solar group (illustr. 16).



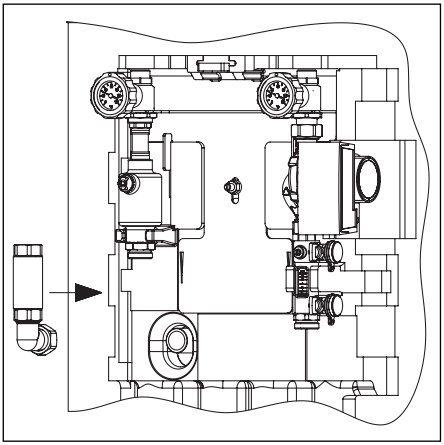
Illustr. 16 Separation of controller

– Suspend solar group into bracket (illustr. 17 point 1) and fix by using a washer and a locking nut (point 2).

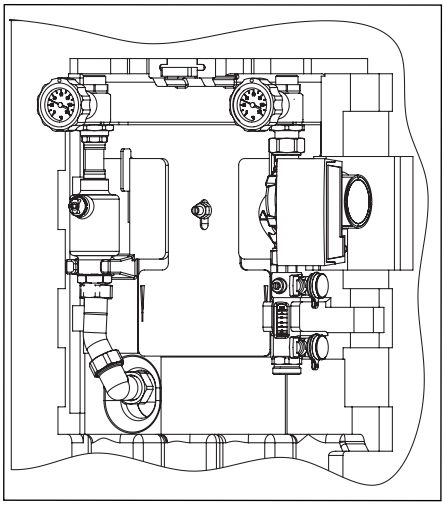


Illustr. 17 Installation of solar group

– Connect solar supply to storage cylinder via the insulated corrugated metal pipe G 1 (illustr. 18) L = 85 mm and the elbow.

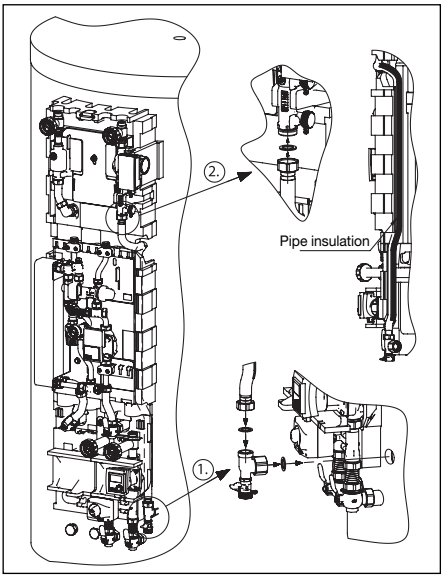


Illustr. 18 Installation of solar supply via the corrugated metal pipe



Illustr. 19 Installation of corrugated metal pipe

– Screw ball valve G1 to the storage cylinder (illustr. 20 point 1) and connect it to the solar return via the bent corrugated metal pipe G 1, with a stretched length of L = 1150 mm (point 2).

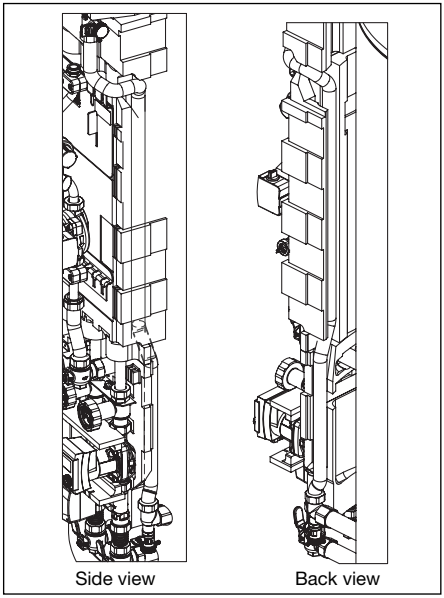


Illustr. 20 Installation of corrugated metal pipe solar return

– It is to be observed that the corrugated metal pipe is laid between the storage cylinder insulation and the thermal insulation of the heating circuit group and that it is covered completely when mounting the front insulation shell (illustr. 21).

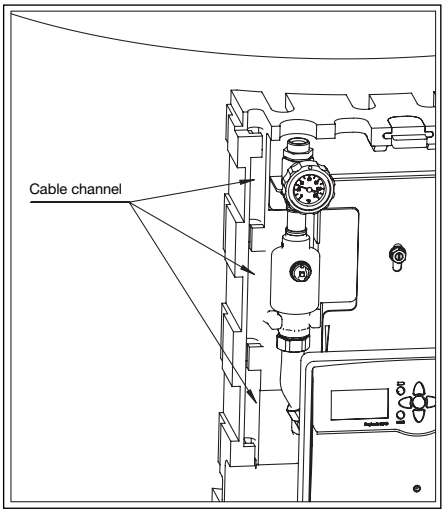
NOTICE

The thermal insulation of the corrugated metal hose must be located between the corrugated metal hose and the storage cylinder insulation to avoid damage to the storage cylinder insulation during operation!
Bend if required!



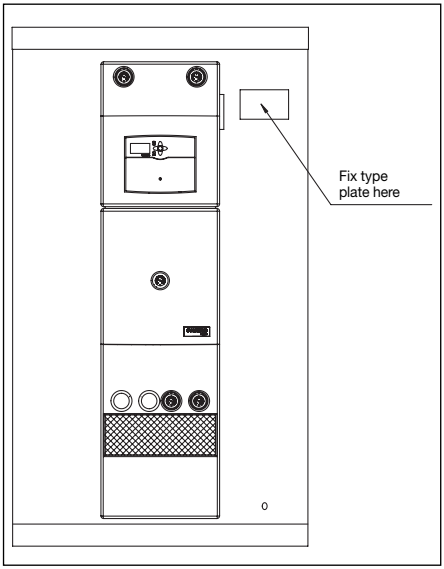
Illustr. 21 Installation of corrugated metal pipe solar return

– Realise piping of the fresh water station or use piping set item no. 138 35 80.
– Suspend controller into the solar group bracket.
– Lay controller cables inside the designated cable channels (illustr. 22).



Illustr. 22 Installation of cable channel

– Mount front insulation shell of the fresh water station.
– Mount front insulation shell of the solar group.
– Fix type plate of the storage cylinder on the right hand side of the solar station on the storage cylinder insulation (The type plate can be found between the insulation and the cover of the storage cylinder!).



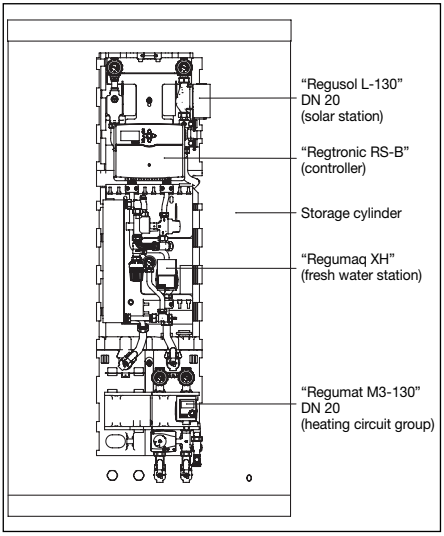
Illustr. 23 Fixing of type plate

The complete pipework must be insulated thoroughly to minimise heat loss.

DANGER

Danger to life and damage to property through operating error or incomplete installation!
For this reason:
The following conditions are to be checked before initial operation:
The ball valves of the solar station **must** be in open position!
A safety valve with diaphragm expansion tank **must** be installed in the solar circuit.

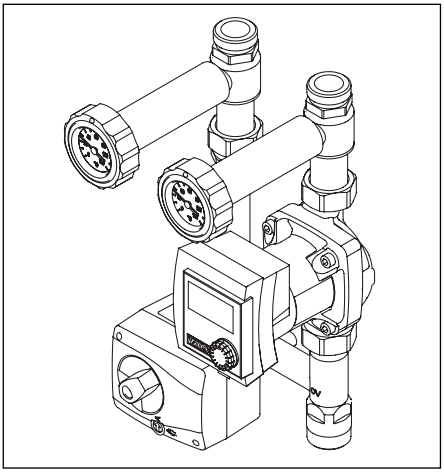
6 Technical data of the components



Illustr. 24 Summary of components

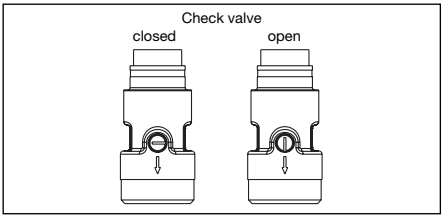
Note:
Further technical data and charts can be found in the technical data sheets of the individual components!

6.1 "Regumat M3-130" DN 20 heating circuit group



Illustr. 25 "Regumat M3-130" DN 20

Check valve
The check valve prevents a gravity circulation of the heating water when the pump is switched off.



Illustr. 26 Check valve

The check valve is closed in operating position; passage is only possible in flow direction.
When putting the system into operation and during maintenance work (filling and flushing), the check valve must be opened.

Actuator
The actuator NR230 of the three-way mixing valve can be activated via the Oventrop system controller "Regtronic RS-B" with three point output.
The angle of rotation is limited to 90°.
Having reached the limit stops, the actuator is switched off electrically and is without current. If the control system malfunctions, the actuator can be converted to manual operation with the help of an additional rotary knob.

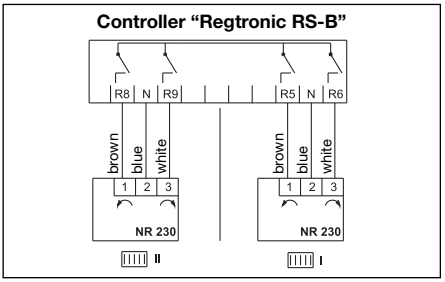
⚠ WARNING

The electrical connection has to be carried out according to the legal rules!

Three point control:

NOTICE

The direction of rotation hot/cold depends on the installation position of the three-way mixing valve (supply/return).



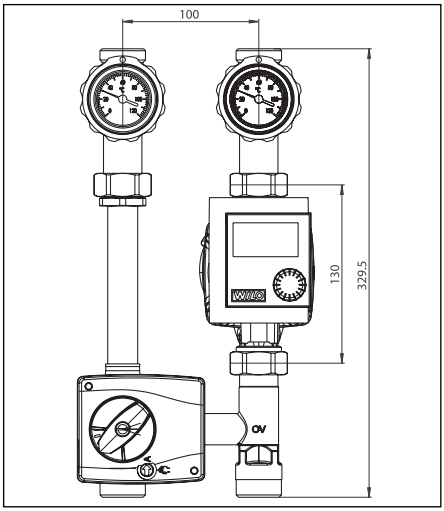
Illustr. 27 Controller

Technical data:

Operating current	230 V 50 Hz
Absorbed power	2.5 W
Protective system	II (shockproof)
Torque	5 Nm
Operating time	140 s
Ambient temperature	0 °C up to + 50 °C
Length of cable	2.2 m

Note:
When the circulation pump is switched off, a low gravity circulation depending on the circulation pressure is still possible within the heating system despite the check valve as the latter is not tight sealing.

Dimensions

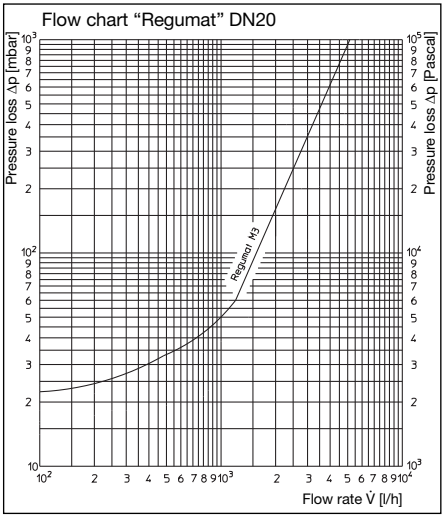


Illustr. 28 Dimensions “Regumat M3-130” DN 20

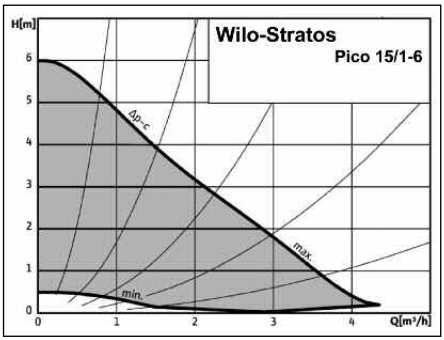
Technical data

Nominal size	DN 20
Max. operating temperature	120 °C
Max. operating pressure	10 bar PN10
kvs value	5.1
Opening pressure check valve	20 mbar
Connections	G1 male thread flat sealing
Pump length	130 mm, G1 male thread

Pressure loss chart



Pump characteristics



6.2 “Regumaq XH” fresh water station

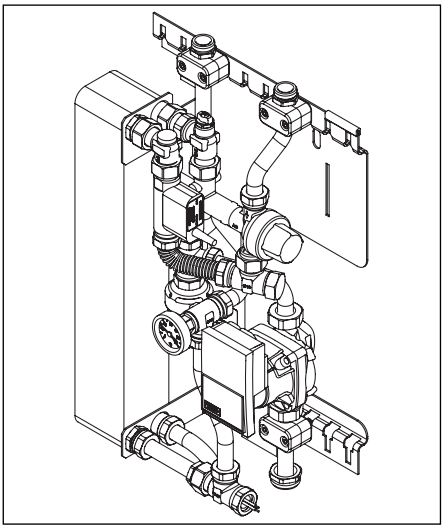
The fresh water station “Regumaq XH” is a hydraulically and thermostatically controlled product group with plate heat exchanger for the hygienic heating of potable water according to the flow principle.

⚠ WARNING

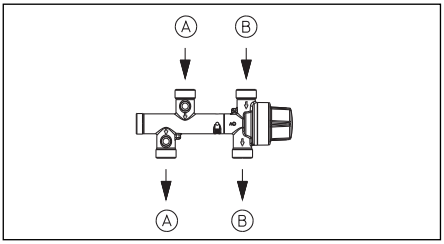
The installation of a heated potable water system must be carried out in accordance with the valid standards, approved rules of technology and local regulations!
Especially when operating a circulation system, the hygiene regulations according to the DWGW work sheet W551 must be observed!

NOTICE

A copper or nickel brazed stainless steel plate heat exchanger is part of the fresh water station.
Please observe the document “Demands on potable water when using Oventrop fresh water and dwelling stations” at www.oventrop.com.
The specifying engineer and the user of the system are responsible to incorporate and evaluate substances and other factors in the water, which influence corrosion and the formation of calcium deposits.



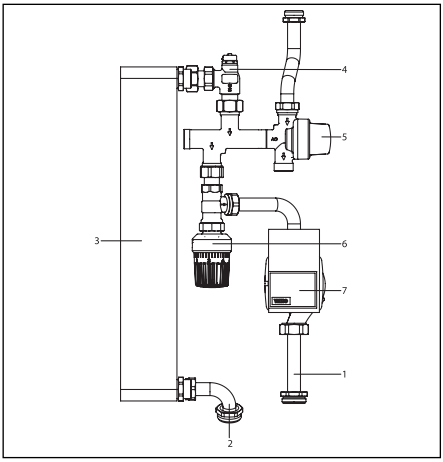
Illustr. 29 Overall view “Regumaq XH”



Illustr. 30 Proportional flow controller

A Storage cylinder circuit - return
B Potable water entry - cold

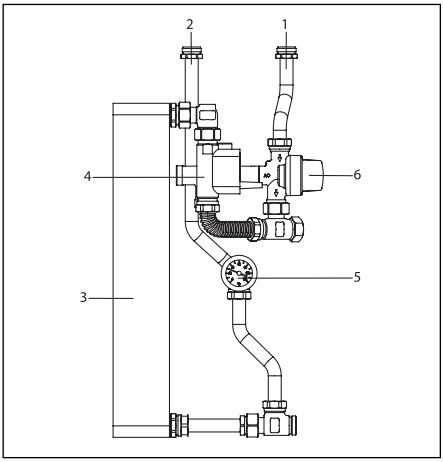
Primary circuit (storage cylinder circuit)



Illustr. 31 Primary circuit

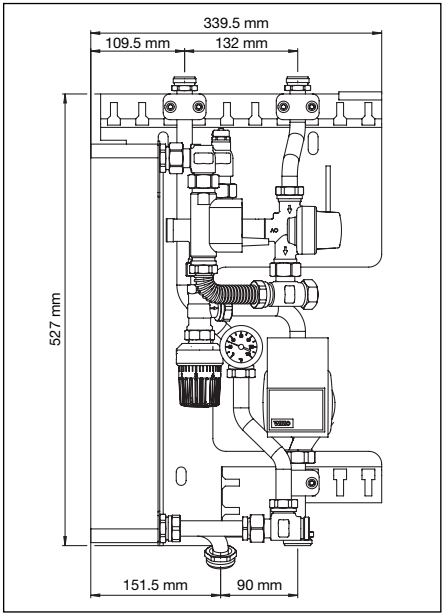
1 Return – storage cylinder
2 Supply – hot water storage cylinder
3 Plate heat exchanger
4 Venting connection
5 Proportional flow controller
6 Thermostatic temperature controller
7 Pump (storage cylinder circuit)

Secondary circuit (potable water circuit)



Illustr. 32 Secondary circuit

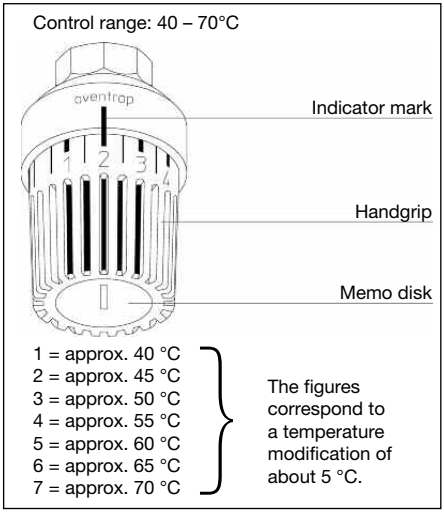
1 Potable water entry
2 Potable water outlet- hot
3 Plate heat exchanger
4 Flow switch
5 Draw-off temperature display
6 Proportional flow controller



Illustr. 33 Dimensions, indications in mm

Temperature controller setting

When leaving the factory, the temperature controller is set to position 2 which corresponds to a potable water temperature of about 45°C. The setting can be adapted to the required potable water temperature.



Illustr. 34 Temperature controller

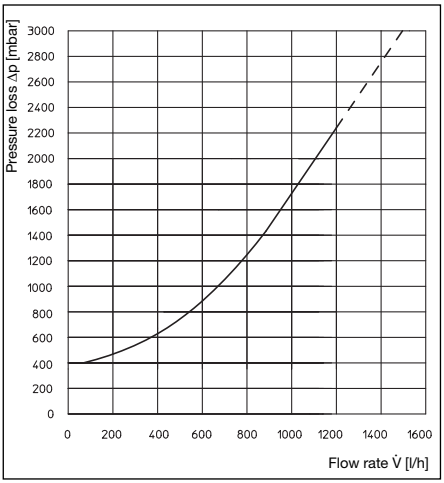
Technical data

General technical data	
Max. operating pressure (primary side)	6 bar
Max. operating pressure (secondary side)	10 bar
Max. operating temperature	95 °C
Max. pump head (primary side)	6 m
Number of heat exchanger plates	30
Kv (primary side)	1.85
Kv (secondary side - draw off operation)	0.76
Kv (secondary side - circulation operation)	0.96
Minimum cold water pressure (at a nominal draw off capacity of 20 l/min)	3.5 bar*
Fluid	
Primary side	Heating water
Secondary side	Potable water
Materials	
Valves	Brass / dezincification resistant brass
Seals	EPDM / AFREE 400
Insulation	EPP
Pipes	Stainless steel 1.4401 / 1.4404
Heat exchanger stainless steel, copper brazed	Stainless steel 1.4401 Brazed copper
Heat exchanger stainless steel, nickel brazed	Stainless steel 1.4401 Brazed nickel
Connections	
Connections (primary side)	G1 fllat sealing
Connections (secondary side)	G¾ flat sealing

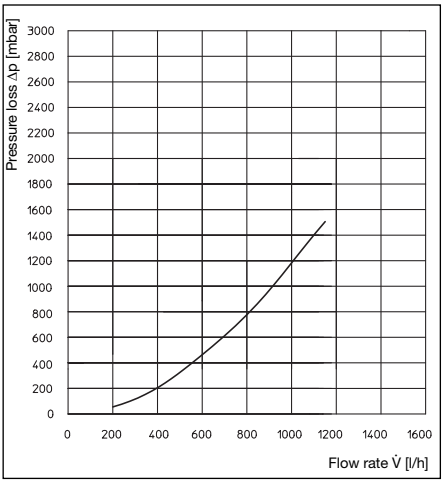
* the pressure has to be increased accordingly if draw off capacities are higher

Flow chart

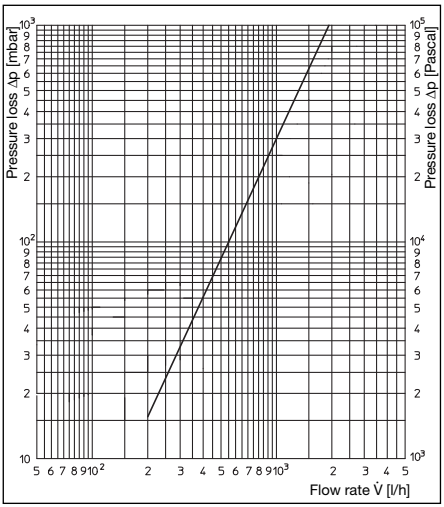
Pressure loss secondary circuit (potable water circuit) during draw off operation



Pressure loss secondary circuit (potable water circuit) during circulation operation

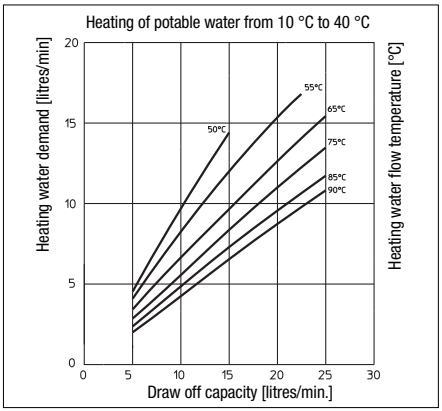


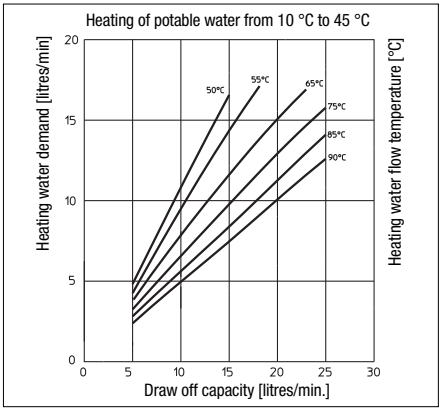
Pressure loss primary circuit (storage cylinder circuit) at maximum draw off operation

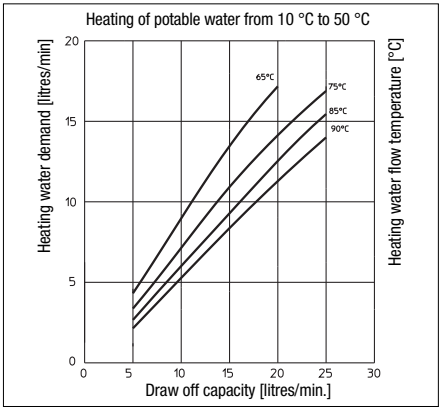


Heating water demand / Return temperature

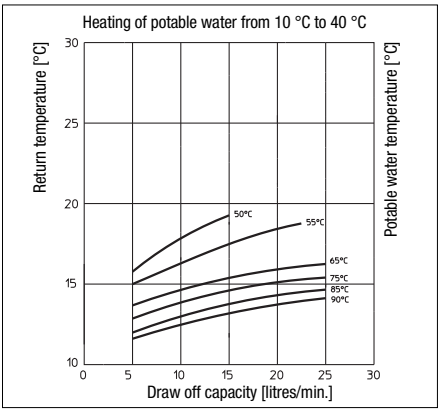
Heating water demand

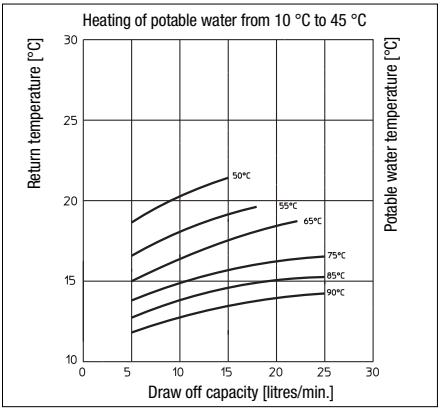


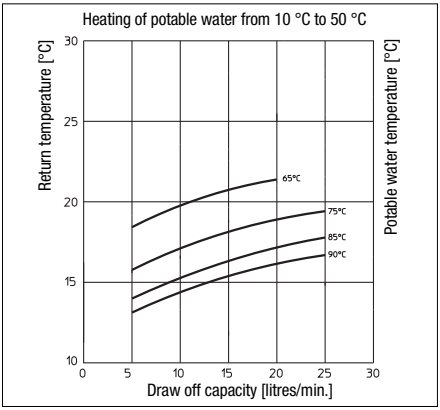




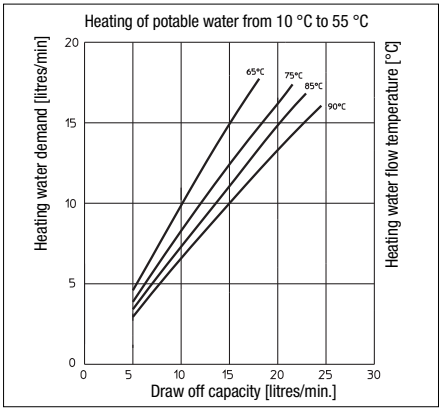
Return temperature

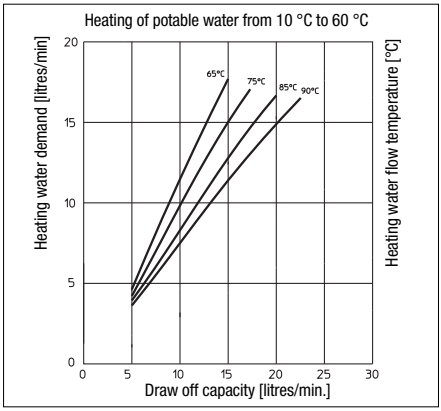




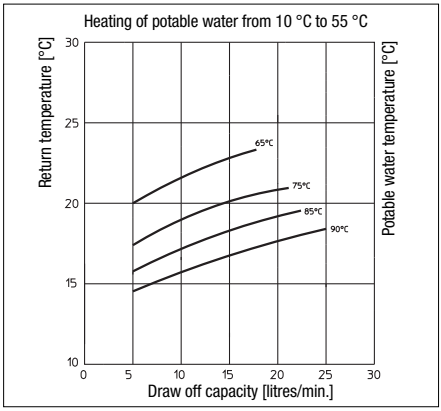


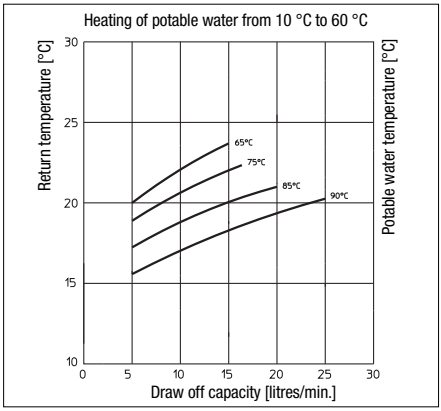
Heating water demand



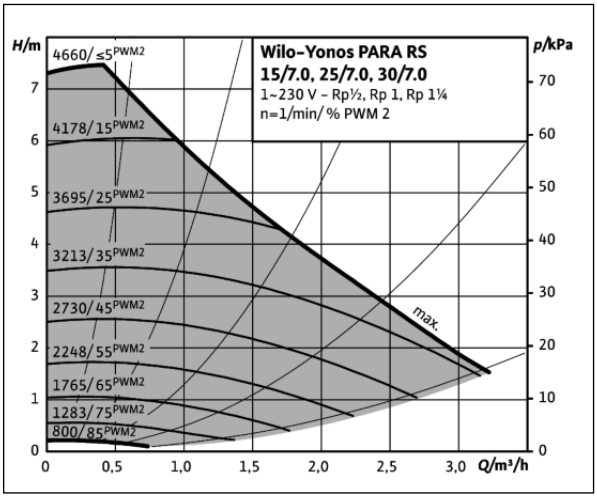


Return temperature

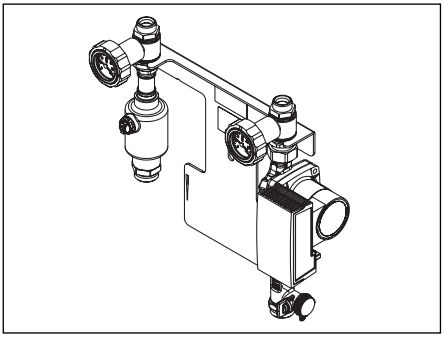




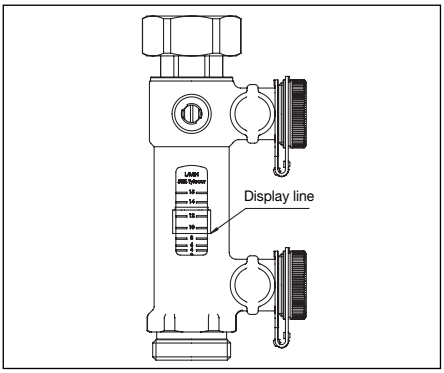
Pump characteristics
Wilo Yonos PARA RS 15/7



6.3 “Regusol L-130” DN 20 solar station



Illustr. 35 “Regusol L-130” DN 20



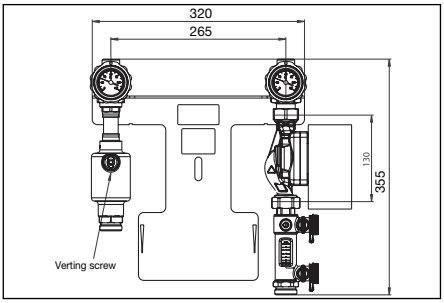
Illustr. 36 Balancing valve

Technical data

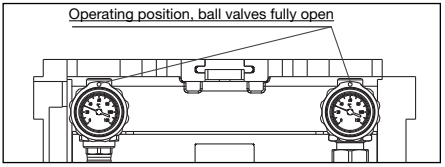
Max. operating temperature	120 °C
Max. operating pressure	6 bar PN10
Safety valve	6 bar
Flow range	2-15 l/min
Opening pressure check valves	20 mbar

Connection
G ¾ for compression fitting
G ¾ flat sealing to storage cylinder

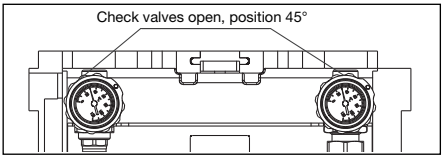
Dimensions:



Illustr. 37 Dimensions “Regusol L-130” DN 20



Illustr. 38 Filling and flushing of the system, operating position



Illustr. 39 Check valves open

DANGER

Danger to life!
During operation the ball valves of the solar station **must** be in open position.

The collector must be protected from excess pressure by a safety valve and a diaphragm expansion tank. (see also operating instructions “Construction, initial operation and maintenance of thermal solar plants” at www.oventrop.com).

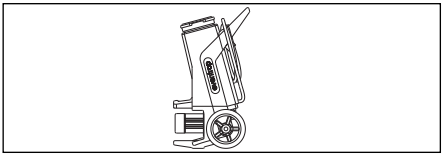
Initial operation solar station

WARNING

- Never fill up installation with solar liquid when temperatures are high! Cover collectors during sunshine and let them cool down!
- Risk of scalding with high temperatures in the solar circuit (collectors > 60°C)! Steam may form in the collectors during intense solar radiation.
- Check correct pressure at the inlet of the expansion tank.

Flushing of the solar circuit
- Flush solar circuit with heat transfer liquid.
- Dry running of the filling pump is inadmissible.
- Use filter (integrated in most mobile filling stations)

Mobile filling station
A mobile filling station (item no. 136 42 40) allows a quick and clean flushing and filling of thermal solar plants – a safe deaeration is thus guaranteed.
The compact unit consisting of pump, tank for solar liquid, filter and hose bracket is mounted on a rugged chart for an easy transport.



Illustr. 40 Mobile filling station

Leakage test
- Carry out visual test of all connections.
- Test pressure 4-5 bar
- Pressure variations due to changing solar radiation may occur.

Filling and bleeding of the solar circuit
- Set ball valves and check valves to operating position (illustr. 38).
- Open both fill and drain ball valves at the balancing valve.
- The ball valve for regulation at the flow measuring device must be fully closed (screwdriver slot in horizontal position).
- Switch on filling pump.
- Operate filling pump until no more air bubbles are visible in the liquid canister. Depending on the installation this may take 30-90 min.
- Close the fill and drain ball valve at the balancing valve once the required system pressure has been reached.

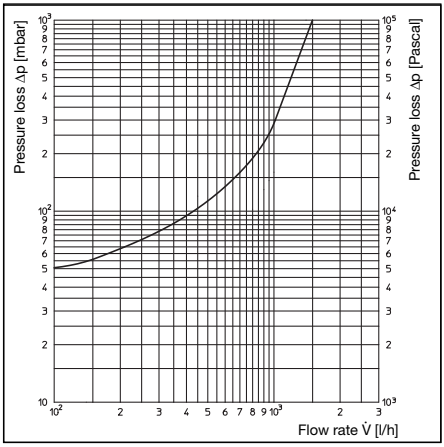
Setting of the system pressure
- Condition: Correct pressure at the inlet of the diaphragm expansion tank during installation. If the system has been filled, the inlet pressure can only be determined if the diaphragm expansion tank has been isolated and depressurized.
- Escaping air can lead to a decrease of the system pressure within a few days after filling.

Suggestion
During filling, set system pressure about 0.1 – 0.2 bar above the value indicated in the table.

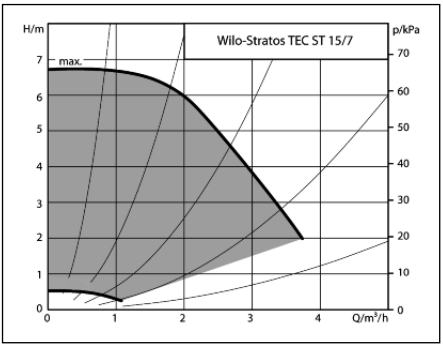
System height [mm]	Inlet pressure diaphragm expansion tank [mbar]	System pressure* [bar]
5	0.9-1.0	1.2-1.3
8	1.2	1.5
10	1.7	2.0
15	2.3	2.6
20	2.8	3.1
*at ambient temperature of the heat exchanger (about 20 °C)		

Setting of the flow rate
The flow rate is controlled automatically.

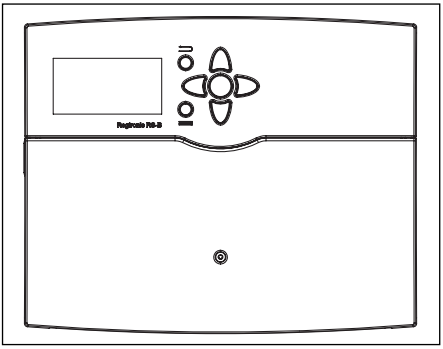
Flow chart:



Pump characteristics:

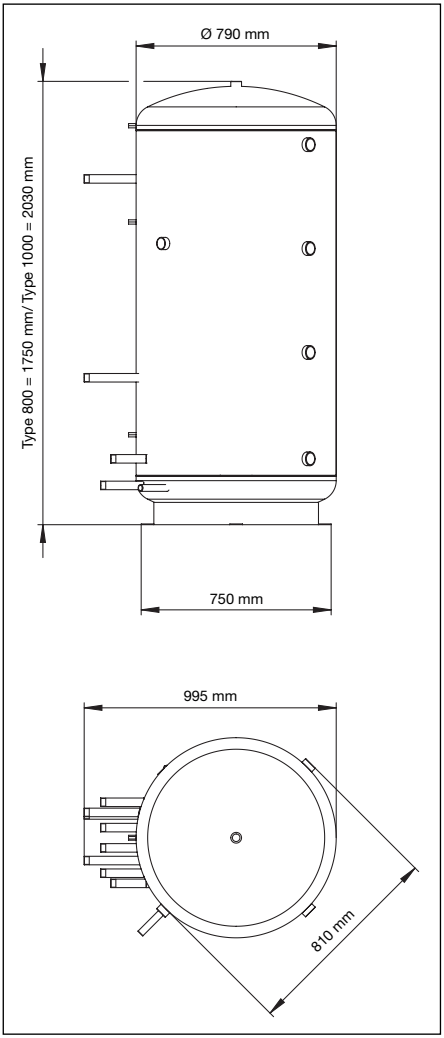


6.4 “Regtronic RS-B” system controller
All important information and data can be obtained from the manual supplied with the controller 138 35 65 81 “Regtronic RM-B/RS-B”.



Illustr. 41 “Regtronic RS-B” system controller

6.5 Storage cylinder



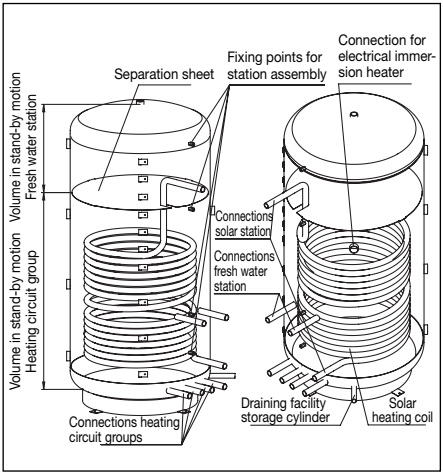
Illustr. 42 Dimensions of storage cylinder without insulation

Technical data storage cylinder:

Volume in stand-by motion:	type 800 / type 1000
– for fresh water station:	200 l / 250 l
Solar heating coil:	3.1 m² / 3.4 m²
Permissible operating pressure:	3 bar
Permissible operating temperature:	95 °C
Geometric design of station nipples:	G1 male thread
Geometric design of storage cylinder nipples:	G 1 ½ female thread
Weight:	186 kg / 198.5 kg

Two integrated loading devices:

1. Return heating circuits
2. Return fresh water station



Illustr. 43 Functional illustrated section

Insulation storage cylinder

Material:	polyester fibres, white
Thickness of material:	140 mm
Fire protection class:	DIN 4102 B1
Thermal conductivity:	λ= 0.04 [W/(m*K)]
Melting point:	
· Share of upholstering fibres:	about 250 °C
· Share of melting fibres:	about 110 °C
· Fusion point:	when reaching 90 °C (beginning)

Insulation jacket

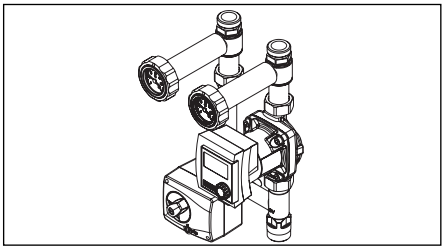
Material:	soft foil made of polyvinyl chloride
Thickness of material:	0.4 mm
Fire protection class:	DIN 4102 B2

Insulation cover

Material:	polystyrene
Fire protection class:	DIN 4102 B2

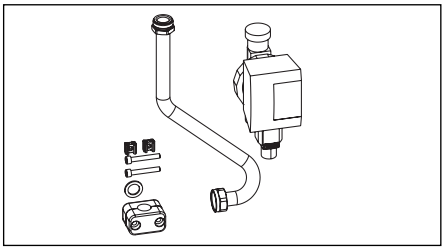
7 Accessories

7.1 “Regucor WHS” extension heating circuit



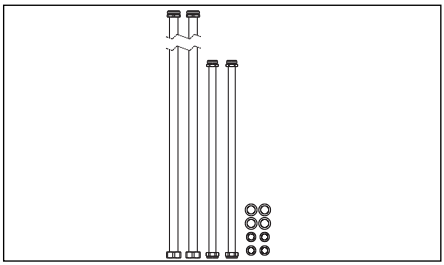
Illustr. 44 “Regumat M3-130” DN 20 heating circuit, pump Wilo-Stratos PICO 25/1-6, with three-way mixing valve and actuator (138 35 70).

7.2 “Regumaq XH” Potable water circulation set



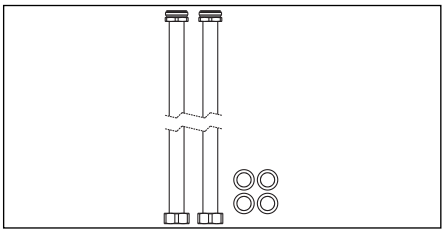
Illustr. 45 Connection set with circulation pump Wilo Star Z Nova C and time switch for the extension of the potable water station “Regumaq XH” by a potable water circulation (138 10 47 **with** circulation pump, 138 10 49 **without** circulation pump).

7.3 Piping set



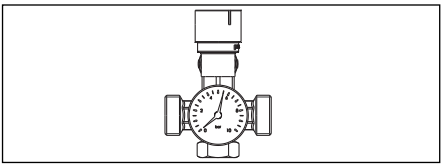
Illustr. 46 For the potable water station and the first heating circuit (138 35 80).

7.4 Extension piping set



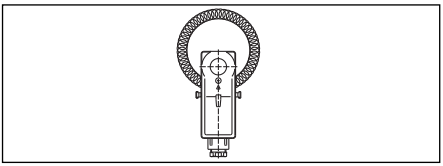
Illustr. 47 For the second heating circuit (138 35 81).

7.5 Solar safety group



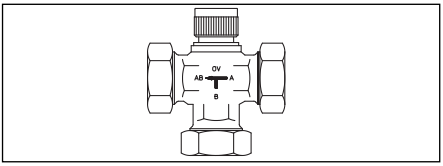
Illustr. 48 For riser installation with safety valve 6 bar for compression fittings “Regusol” (136 42 48).

7.6 Electric sensor attached to the pipe



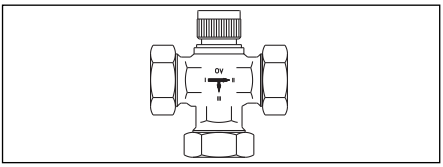
Illustr. 49 Electric sensor attached to the pipe with hidden temperature setting, control range 20-90°C (114 30 00).

7.7 “Tri-M TR” Three-way mixing valve PN 16



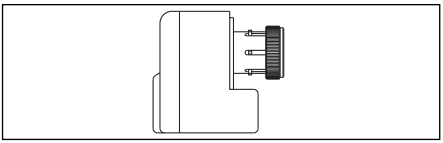
Illustr. 50 Three-way valve for two-zone loading (113 17 06).

7.8 “Tri-D TR” three-way diverting valve PN 16



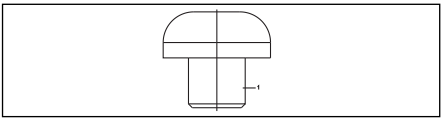
Illustr. 51 Three-way valve for two-zone loading (113 02 06).

7.9 Actuator



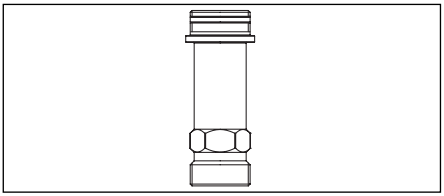
Illustr. 52 Actuator for the activation of a three-way valve (101 27 10).

7.10 Insulation cap



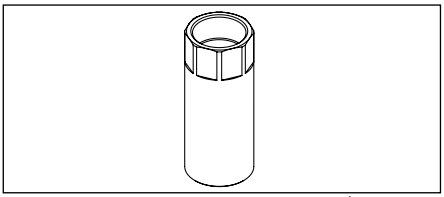
Illustr. 53 Insulation cap for female thread G 1 ½ (138 90 01).

7.11 Extension for loading nipple



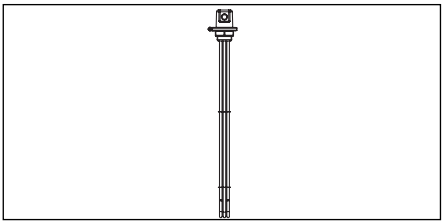
Illustr. 54 Extension for female thread G 1 ½ (138 35 93).

7.12 Extension for electrical immersion heater



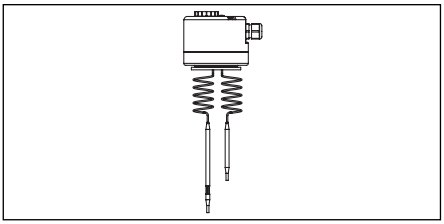
Illustr. 55 Extension for female thread R 1 ½ (138 35 92).

7.13 Electrical immersion heater



Illustr. 56 Electrical immersion heater 9kW for electronically heating the storage cylinder water (138 35 90).

7.14 Controller and limiter combination for electrical immersion heater



Illustr. 57 Controller and limiter combination for the self-sufficient control and limitation of the electrical immersion heater (138 35 91).

8 Maintenance

8.1 Maintenance

To guarantee a perfect operation of the energy storage centre, it is recommended to have it maintained by a specialist heating company at least once a year.

The following work should be done:
– Leakage test of all components and couplings

9 Removal and disposal

WARNING

Risk of injury!
Improper use may lead to extensive injuries and damage to property.

For this reason:
– Removal must only be carried out by a qualified tradesman.
– Have any work at the electrical installation only carried out by a qualified electrician.

9.1 Removal

WARNING

Risk of injury!
Stored residual energies, angular components, points and edges at the outside and inside of the appliance may cause injuries.

For this reason:
– Before starting work, make sure that there is enough place.
– Open and sharp-edged components are to be handled with care.

Please make sure that the work place is tidy and clean! Loose components and tools lying around are hazardous. Disassemble components professionally.

Before starting removal:
– Switch off appliance and secure against restart.
– Separate physically all power supply from the appliance and discharge stored residual energies.
– Remove operating and auxiliary materials as well as remaining processing materials and dispose of environmentally friendly.

9.2 Disposal

If no return or disposal agreement has been made, dismantled components are to be recycled:
– Metals are to be scrapped.
– Plastic parts are to be recycled.
– Depending on the material they are made of, other components are to be disposed of accordingly.

NOTICE

Ecologically harmful if incorrectly disposed of!
Electrical waste, electronic components, lubricants and other auxiliary materials are dangerous waste and must only be disposed of by specialised companies!

The local municipal authority or specialised disposal companies give information on environmentally friendly disposal.

10 Warranty

Oventrops warranty conditions valid at the time of supply are applicable.

«Regucor WHS»
Unité centrale d'accumulation d'énergie

Notice d'installation et d'utilisation pour les professionnels

Lire intégralement la notice d'installation et d'utilisation avant le montage de l'unité centrale d'accumulation d'énergie!
Le montage, la mise en route, le service et l'entretien ne doivent être effectués que par des professionnels qualifiés!
Remettre la notice d'installation et d'utilisation ainsi que tous les documents de référence à l'utilisateur de l'installation!

Contenu

1 Généralités 45
2 Consignes de sécurité.....46
3 Transport, stockage et emballage..... 46
4 Données techniques..... 46
5 Montage 48
6 Données techniques des composants..... 54
7 Accessoires 65
8 Entretien 66
9 Démontage et élimination……..... 66
10 Garantie 66

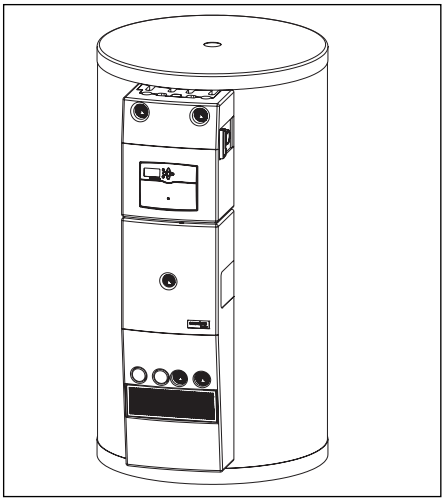


Fig. 1 «Regucor WHS»

1 Généralités

1.1 Informations sur la notice d'installation et d'utilisation

Cette notice d'installation et d'utilisation a pour but d'aider le professionnel à installer et mettre en service l'unité centrale d'accumulation d'énergie selon les règles de l'art.
Les autres documents de référence – Les notices de tous les composants du système ainsi que les règles techniques d'usage en vigueur - sont à respecter.

1.2 Conservation des documents

Cette notice d'installation et d'utilisation doit être conservée par l'utilisateur de l'installation pour consultation ultérieure.

1.3 Protection de la propriété intellectuelle

La présente notice d'installation et d'utilisation est protégée par le droit de la propriété intellectuelle.

1.4 Signification des symboles

Les consignes de sécurité sont identifiées par des symboles. Ces consignes doivent être respectées pour éviter des accidents, des dégâts matériels et des dysfonctionnements.

DANGER DANGER signifie une situation immédiate dangereuse qui peut mener à la mort ou provoquer des blessures graves en cas de non-observation des consignes de sécurité.

AVERTISSEMENT AVERTISSEMENT signifie une situation potentiellement dangereuse qui peut mener à la mort ou provoquer des blessures graves en cas de non-observation des consignes de sécurité.

PRUDENCE PRUDENCE signifie une situation potentiellement dangereuse qui peut entraîner des blessures minimes ou légères en cas de non-observation des consignes de sécurité.

ATTENTION ATTENTION signifie des dégâts matériels qui peuvent résulter de la non-observation des consignes de sécurité.

Vous trouverez une vue d'ensemble des interlocuteurs dans le monde entier sur www.oventrop.com.

Sous réserve de modifications techniques.

138355080 03/2014

2 Consignes de sécurité

2.1 Utilisation conforme

La sûreté de fonctionnement de l'unité centrale d'accumulation d'énergie n'est garantie que si elle est affectée à l'utilisation prévue.

Toute autre utilisation eu égard aux spécificités de l'unité centrale d'accumulation d'énergie est interdite et réputée non conforme. Les revendications de toute nature à l'égard du fabricant et/ou ses mandataires pour des dommages résultant d'une utilisation non conforme ne seront pas acceptées. L'utilisation conforme inclus notamment l'application des recommandations de la notice d'installation et d'utilisation.

2.2 Risques liés au lieu d'installation et au transport

Le cas d'un incendie externe n'a pas été pris en considération lors de la conception de l'unité centrale d'accumulation d'énergie.

⚠ DANGER

Risque de brûlure!
Les conduites d'eau et l'eau s'écoulant du robinet au peuvent être très chaudes (>60°C).

Pour cette raison:
- Il est impératif de porter des vêtements et des gants de protection pour tous travaux à proximité de composants chauds.
- Tous les composants doivent être à température ambiante avant le début des travaux.
- Si nécessaire, prévoir des mesures de protection contre les brûlures.

3 Transport, stockage et emballage

3.1 Inspection après transport

Examiner la livraison immédiatement après réception pour vérifier l'absence de dommages dus au transport. Si des dommages ou d'autres défauts sont constatés, n'accepter la marchandise que sous réserve. Emettre une réclamation en respectant les délais applicables.

3.2 Stockage

Ne stocker l'unité centrale d'accumulation d'énergie que dans les conditions suivantes :
- Non exposé à des agents agressifs.
- A l'abri du rayonnement solaire ou de sources de chaleur.
- A une température de stockage de -20°C à + 60 C.
- Humidité relative de l'air : 95% max.

3.3 Emballage

Le matériel d'emballage est à éliminer dans le respect de l'environnement.

3.4 Montage, mise en service, entretien

ATTENTION

Un échangeur de chaleur à plaques en acier inoxydable brasé au cuivre ou au nickel fait partie de l'unité centrale d'accumulation d'énergie «Regucor WHS». Le bureau d'études et l'utilisateur de l'installation doivent tenir compte des substances présentes dans l'eau et des facteurs influant sur la corrosion et la formation de tartre dans le système et les évaluer dans tous les cas de figure, au risque d'engager leur responsabilité.
Merci d'observer les recommandations du document «Exigences imposées pour l'eau potable lors de l'utilisation des stations d'eau potable et des stations d'appartement» sur www.oventrop.com.

⚠ DANGER

Risque de mort!
Les robinets à tournant sphérique de la station solaire **doivent** être ouverts en pleine période de service.

⚠ DANGER

Risque de mort en cas de qualification insuffisante!
Une mauvaise manipulation peut entraîner des dommages corporels et des dégâts matériels considérables.
Pour cette raison:
Le montage, la mise en service, l'entretien et les réparations ne doivent être effectués que par des professionnels qualifiés (VDE, EN 12975 & DIN 4807).

⚠ AVERTISSEMENT

Afin d'assurer un fonctionnement optimal de l'installation, la tuyauterie doit être purgée complètement et être rincée à fond.
Prévoir les accessoires nécessaires (purgeur etc.) sur site si besoin.
Une pression de service adéquate doit être garantie!

3.5 Pièces de rechange

⚠ AVERTISSEMENT

Risque de blessure en cas de pièces de rechange non adaptées!
Des pièces de rechange non adaptées ou défectueuses peuvent non seulement entraîner des dommages, des dysfonctionnements ou une panne totale mais aussi être dangereuses.
Pour cette raison:
N'utiliser que les pièces de rechange originales prescrites par le fabricant.

4 Données techniques

Fluides compatibles: Fluides non-agressifs (par ex. eau et mélanges eau-glycol adéquats selon VDI 2035). Ne convient pas à la vapeur, ni à l'eau de piscine, ni aux fluides huileux et agressifs.

⚠ DANGER

Il convient de s'assurer, par des mesures appropriées (par ex. soupapes de sécurité), que les pressions et températures de service respectent les pressions et températures min. /max. admissibles.

4.1 Encombrements

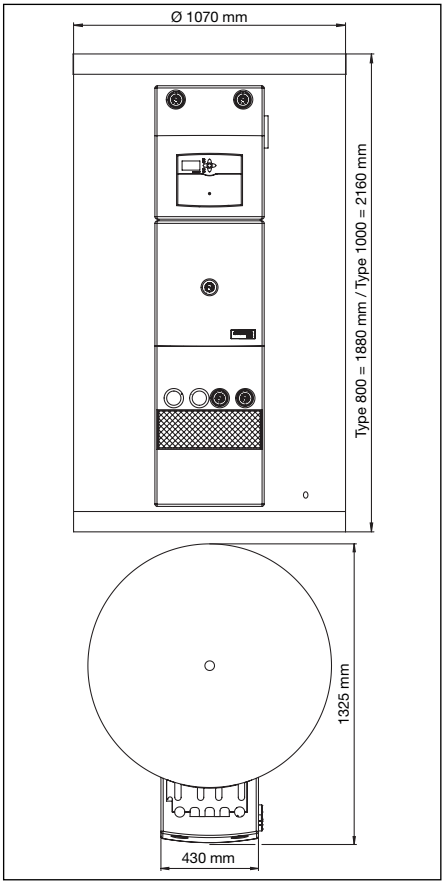


Fig. 2 Encombrements

4.2 Installation dimensions

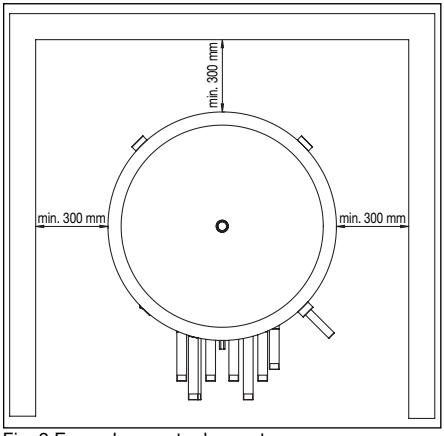


Fig. 3 Encombrements de montage

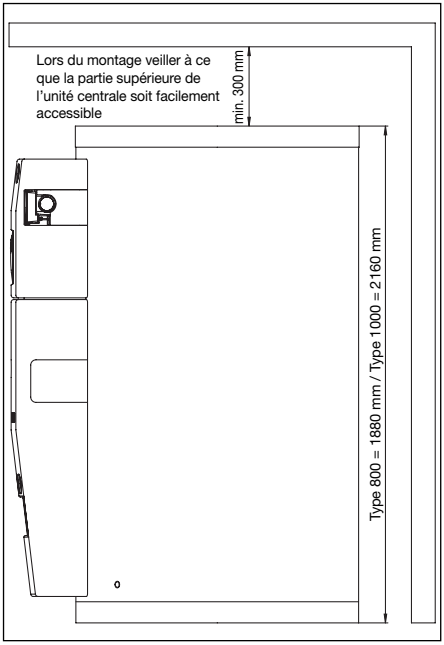


Fig. 4 Encombrements de montage

AVERTISSEMENT

L'unité centrale doit être positionnée à la verticale sur un sol plan.

ATTENTION

Bac de rétention / Evacuation
L'utilisation d'un bassin collecteur est prescrite lors du montage de l'unité centrale, surtout pour centrales de chauffage sur toiture. Lors du montage dans la cave, celle-ci doit disposer d'une évacuation afin de garantir un écoulement d'eau qui pourrait s'en échapper.

5 Montage

- Enlever l'isolation du ballon d'eau chaude.
- Enlever les bouchons d'obturation des manchons de chargement requis.
- Visser les rallonges des manchons de chargement avec le côté auto-étanche dans les manchons de chargement requis jusqu'en butée.

ATTENTION

Les rallonges (réf. 138 35 93) doivent être utilisées si plus de deux manchons de chargement sont requis!

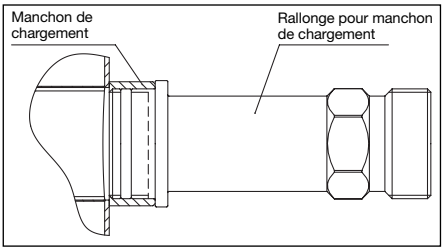


Fig. 5 Rallonge monté pour manchon de chargement

- Couper le revêtement isolant le long de la perforation aux endroits requis et enlever les découpes.
- Raccorder les sondes de température sur le ballon d'eau chaude aux raccordements correspondants.
- Aligner le revêtement isolant aux raccordements du ballon d'eau chaude et monter l'isolation.

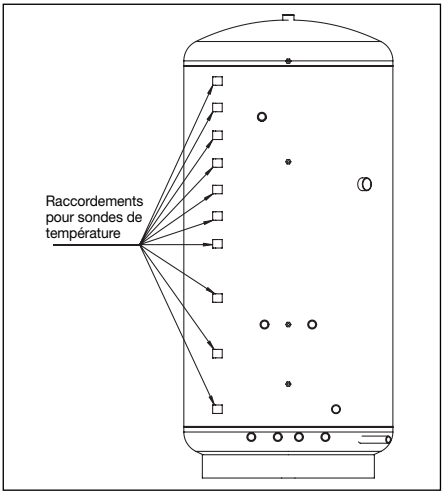


Fig.6 Ballon d'eau chaude avec isolation démontée

Consignes concernant le montage du revêtement isolant

L'isolation ne doit être montée que dans des conditions tempérées (20-22°C)!

- Comprimer l'isolation en direction de la fermeture éclair!
- La fermeture éclair (1) doit être fermée par une seconde personne!

ATTENTION

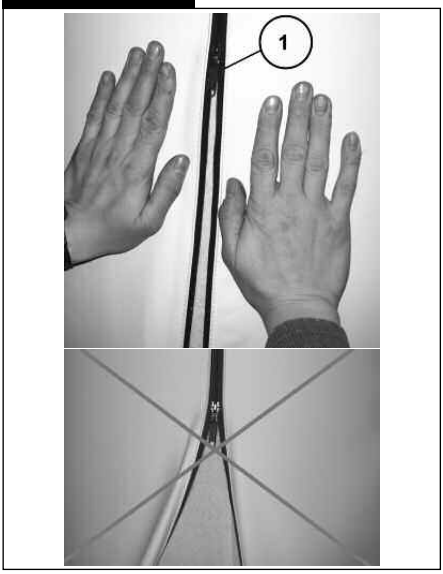


Fig. 7 Montage du revêtement isolant

ATTENTION

Ne jamais manipuler la fermeture éclair sans effectuer une compression de l'isolation afin de diminuer la pression sur la fermeture. Cela peut entraîner un endommagement irréparable du revêtement isolant!

- Monter l'ensemble de fixation (fig. 8).
- Visser la tige filetée dans les écrous soudées du ballon d'eau chaude (Attention: la tige d'une longueur L = 230 mm doit être vissée dans l'écrou supérieur! Visser les 3 tiges filetées d'une longueur L = 185 mm dans les trois écrous inférieurs!) (Fig. 8).
- Faire glisser les douilles d'écartement.
- Monter le support de fixation et le fixer à l'aide des rondelles et écrous (Attention: Utiliser les écrous en laiton d'une longueur L = 22 mm pour les deux tiges filetées inférieures et les écrous en acier pour les tiges filetées supérieures!).

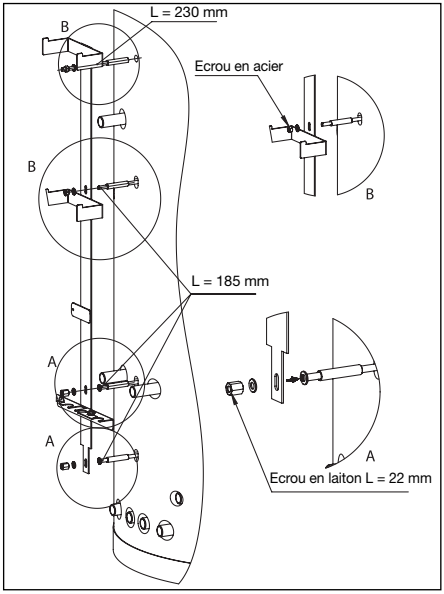


Fig. 8 Montage de l'ensemble de fixation

– Raccorder les robinets à tournant sphérique G 1 avec les joints sur le côté droit du ballon d'eau chaude (fig. 9 point 1).
– Monter les bouchons de fermeture G 1 avec les joints sur le côté gauche du ballon d'eau chaude (point 2).
– Détacher la plaque d'arrêt du support de fixation.
– Faire glisser la partie arrière de l'isolation du groupe du circuit de chauffage par-dessus le support de fixation et la fixer à l'aide de la plaque d'arrêt, des rondelles et des écrous (point 3).

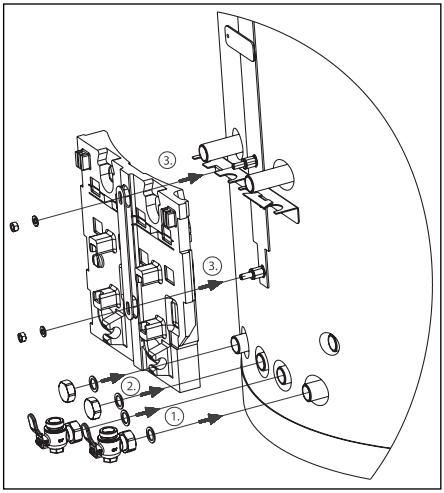


Fig. 9 Montage des robinets à tournant sphérique et de l'isolation du groupe du circuit de chauffage

– Raccorder les tubes annelés métalliques d'une longueur de L = 45 mm avec les joints au groupe du circuit de chauffage (fig. 10 point 1). Ensuite accrocher le groupe au support de fixation (point 2), monter la plaque d'arrêt et la fixer au support de fixation (point 3).
– Raccorder les tubes annelés métalliques aux robinets à tournant sphérique.
– Fermer les robinets à tournant sphérique.

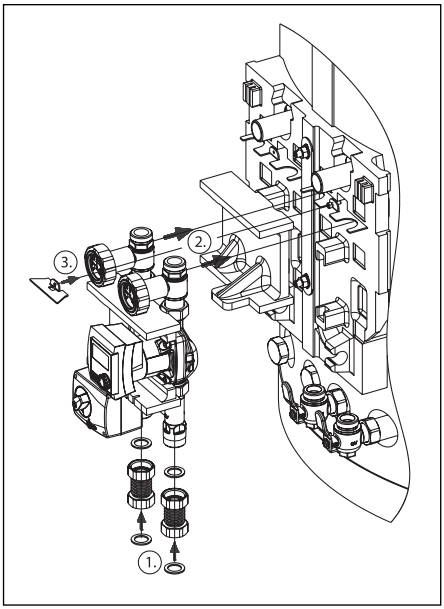


Fig. 10 Montage du groupe du circuit de chauffage

ATTENTION

Les raccordements destinés au circuit de chauffage doivent être utilisés uniquement à cet effet!

– Réaliser le tubage des conduites aller et retour en partant du groupe du circuit de chauffage (fig. 11 point 1) ou utiliser le jeu de raccordement réf. 1383580 ou réf. 1383581 pour un deuxième circuit de chauffage optionnel.
  Veillez à raccorder correctement l'aller et le retour.
– Faire glisser la partie arrière de l'isolation de la station d'eau potable (point 2) et du groupe solaire (point 3) sur le support de fixation.
– Monter les robinets à tournant sphérique pour le raccordement de la station d'eau potable au ballon d'eau chaude (point 4).

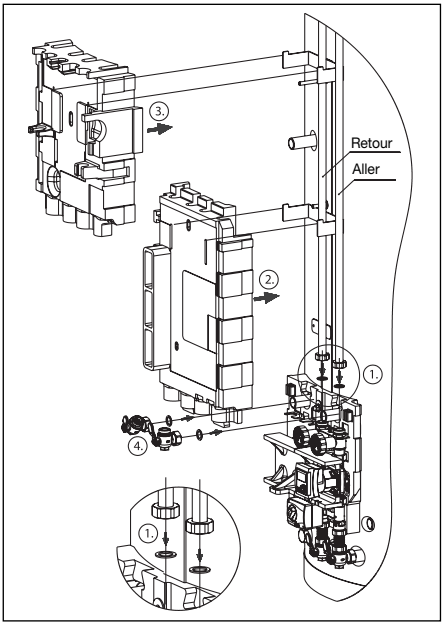


Fig. 11 Montage des isolations thermiques

Jeu de raccordement réf. 138 35 80 pour le raccordement d'un circuit de chauffage et de la station d'eau potable.

Se composant de:
2x Tube en acier inoxydable (L = 1260 mm)
2x Tube en acier inoxydable (L = 500 mm)
4x Joint torique pour G 1
4x Joint torique pour G ¾

Jeu de raccordement réf. 138 35 81 pour le raccordement du circuit de chauffage optionnel réf. 138 35 81.

Se composant de:
2x Tube en acier inoxydable (L = 1260 mm)
4x Joint torique pour G 1

– Accrocher la station d'eau potable au support de fixation (fig. 12/13).)
– Mise en place du dispositif anti-torsion à l'aide de la vis de fixation et d'une rondelle.

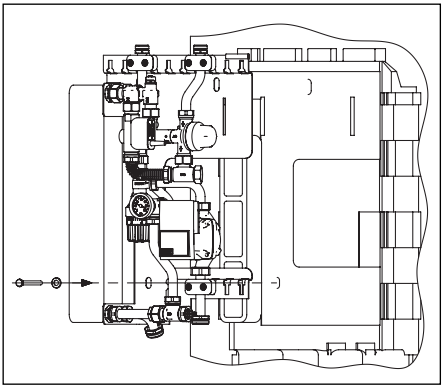


Fig. 12 Montage de la station d'eau potable

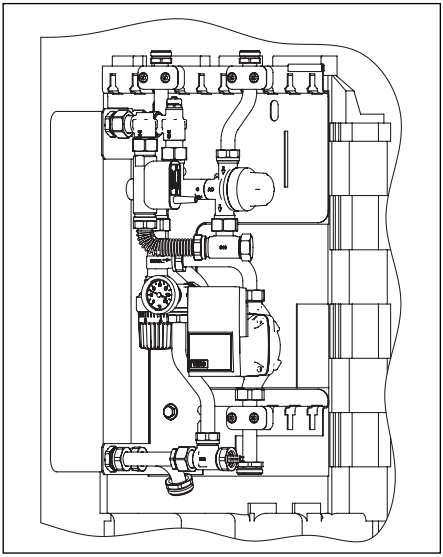


Fig. 13 Montage de la station d'eau potable

– Raccorder la station d'eau potable aux robinets à tournant sphérique à l'aide des tubes annelés métalliques G 1 d'une longueur de L = 110 mm.

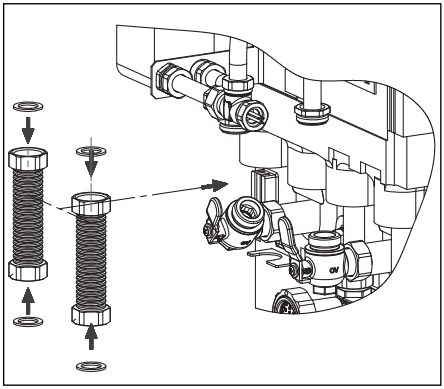


Fig. 14 Montage des tubes annelés métalliques

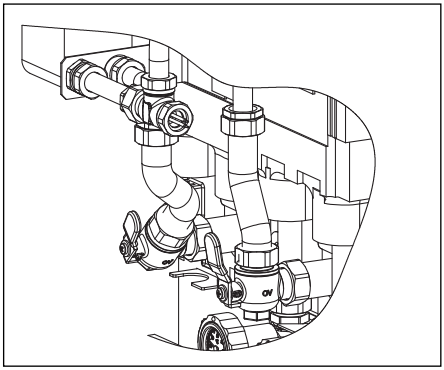


Fig. 15 Montage des tubes annelés métalliques

– Démonter le régulateur du groupe solaire (fig. 16).

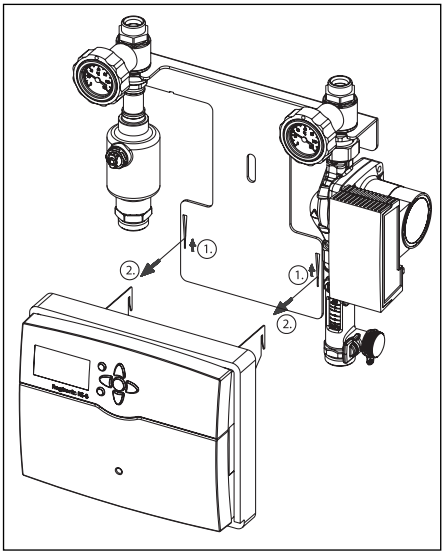


Fig. 16 Démontage du régulateur

– Accrocher le groupe solaire au support de fixation (fig. 17 point 1) et le fixer à l'aide d'une rondelle et d'un contre-écrou (point 2).

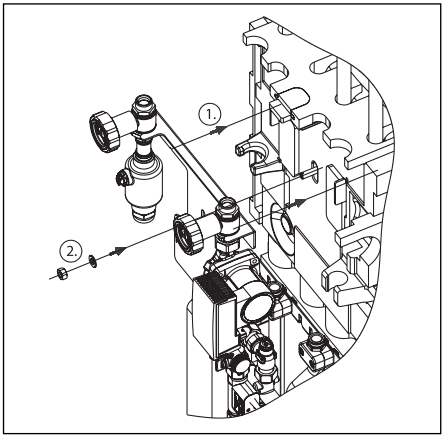


Fig. 17 Montage du groupe solaire

– Raccorder l'aller solaire au ballon d'eau chaude à l'aide du tube annelé métallique isolé G 1 (fig. 18), longueur L = 85 mm et de l'équerre.

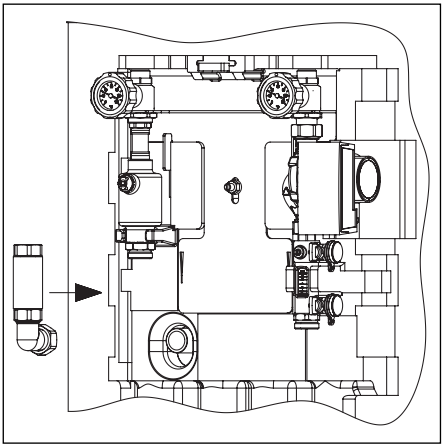


Fig. 18 Montage du tube annelé métallique aller solaire

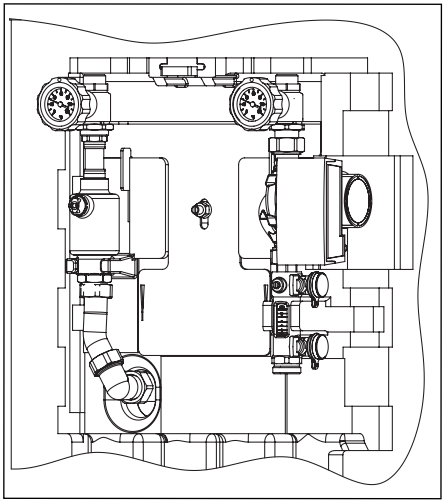


Fig. 19 Montage du tube annelé métallique

– Visser le robinet à tournant sphérique G 1 au ballon d'eau chaude (fig. 20 point 1) et le raccorder au retour solaire avec le tube annelé métallique cintré G 1 d'une longueur maximale de L = 1150 mm (point 2).

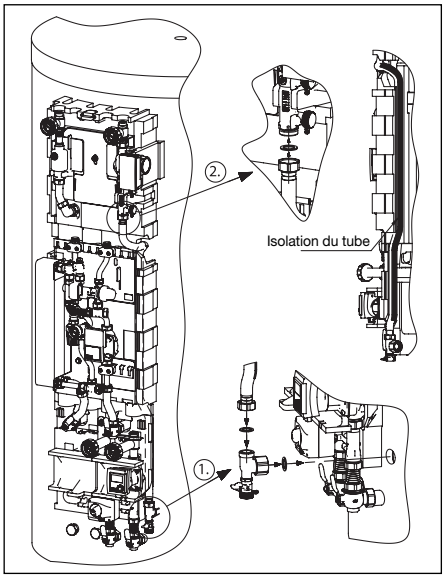


Fig. 20 Montage du tube annelé métallique retour solaire

– Il faut veiller à ce que le tube annelé métallique soit posé entre l'isolation du ballon d'eau chaude et l'isolation du groupe du circuit de chauffage et qu'il soit complètement dissimulé lors du montage de la partie avant de l'isolation (fig. 21).

ATTENTION

L'isolant thermique du tube annelé métallique doit se trouver entre le tube annelé métallique et l'isolation du ballon d'eau chaude afin d'éviter tout dommage au niveau de l'isolation du ballon d'eau chaude en pleine période de service!
Cintrer si nécessaire!

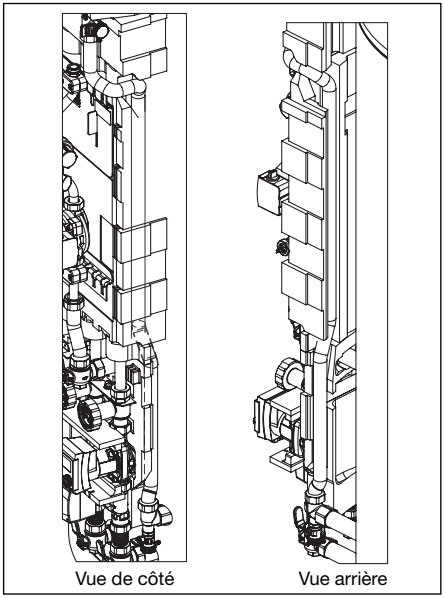


Fig. 21 Montage du tube annelé métallique retour solaire

– Réaliser le tubage de la station d'eau potable ou utiliser le jeu de tubage réf. 138 35 80.
– Accrocher le régulateur au support de fixation du groupe solaire.
– Poser les câbles du régulateur dans les chemins de câbles prévus à cet effet (fig. 22).

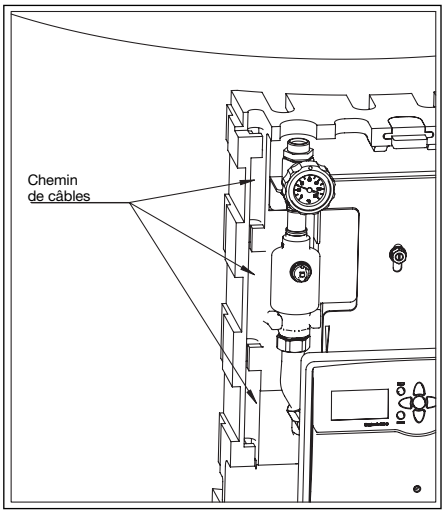


Fig. 22 Montage du chemin de câbles

– Monter la partie avant le l'isolation de la station d'eau potable.
– Monter la partie avant de l'isolation du groupe solaire.
– Fixer la plaque signalétique de l'unité centrale sur le côté droit de la station solaire sur l'isolation du ballon d'eau chaude (en sortie d'usine, elle se trouve entre l'isolation et le couvercle du ballon d'eau chaude).

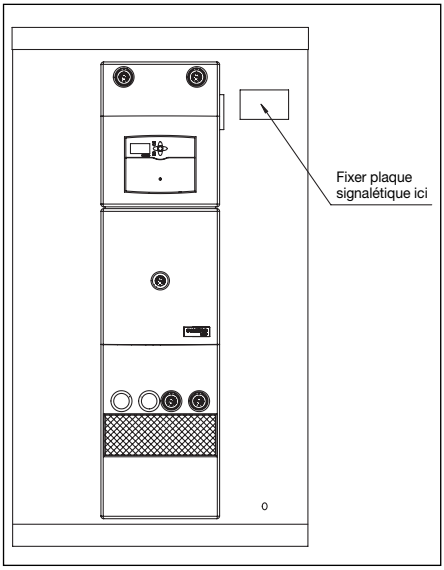


Fig. 23 Fixation de la plaque signalétique

La tuyauterie doit être parfaitement et complètement isolée afin de minimiser les pertes thermiques.

DANGER

Risque de mort et de dégâts matériels par fausse manœuvre ou installation incomplète!
Pour cette raison:
Les points suivants doivent être vérifiés avant la mise en service (initiale):
– Les robinets à tournant sphérique de la station solaire **doivent** être complètement ouverts!
– Une soupape de sécurité avec vase d'expansion à membrane **doit** être installée dans le circuit solaire.

6 Données techniques des composants

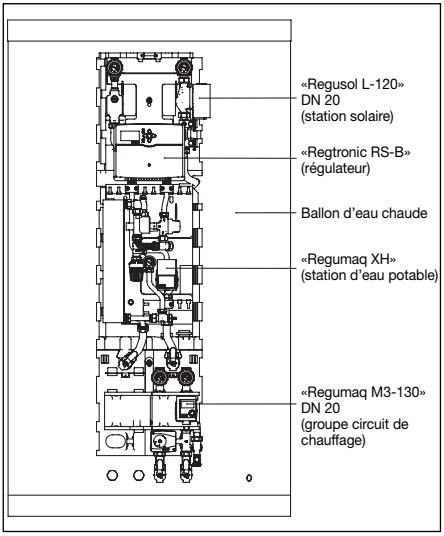


Fig. 24 Vue d'ensemble des composants

Consigne:
De plus amples informations et diagrammes se trouvent dans les fiches techniques des composants!

6.1 Groupe du circuit de chauffage «Regumat M3-130» DN20

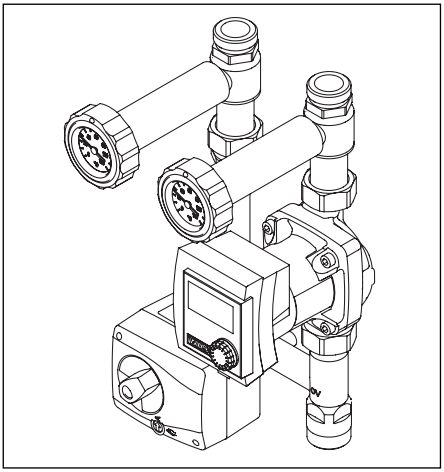


Fig. 25 «Regumat M3-130» DN20

Clapet ATS
En cas d'arrêt du circulateur, le clapet ATS évite une circulation par thermosiphon de l'eau de chauffage.

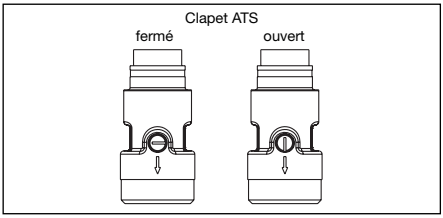


Fig. 26 Clapet ATS

En position de service, le clapet ATS est fermé et le passage n'est possible que dans le sens de circulation.
Lors de la mise en service ou pendant les travaux d'entretien (remplissage et rinçage), le clapet ATS doit être ouvert.

Moteur
Le moteur NR230 de la vanne mélangeuse à trois voies peut être commandé par le régulateur Oventrop «Regtronic RS-B» avec une sortie à trois points.
L'angle de rotation est limité à 90°.
En atteignant les butées de fin de course, l'alimentation électrique du moteur est coupée. En cas de dérangements du système de régulation, le moteur peut être commuté en mode manuel à l'aide d'un interrupteur.

⚠ AVERTISSEMENT

Le branchement électrique doit être effectué selon les normes en vigueur!

Commande trois points:

ATTENTION

Le sens de rotation chaud/froid dépend de la position de montage de la vanne mélangeuse à trois voies (aller/retour).

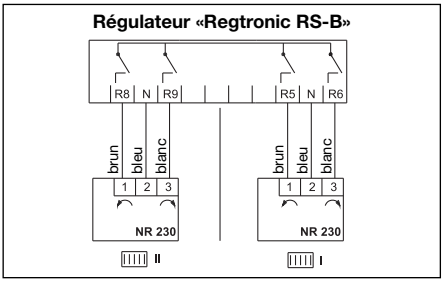


Fig. 27 Régulateur

Données techniques:

Tension de service	230 V 50 Hz
Puissance absorbée	2,5 W
Classe de protection	II (à double isolation)
Couple	5 Nm
Durée de marche	140 s
Température ambiante	0 °C à + 50 °C
Longueur du câble	2,2 m

Consigne:
Dans l'état circulateur arrêté, une circulation par thermosiphon minime peut se produire dans des installations de chauffage en fonction de la pression thermosiphon, en dépit du clapet ATS. Les clapets ATS ne sont pas des clapets anti-retour.

Encombrements

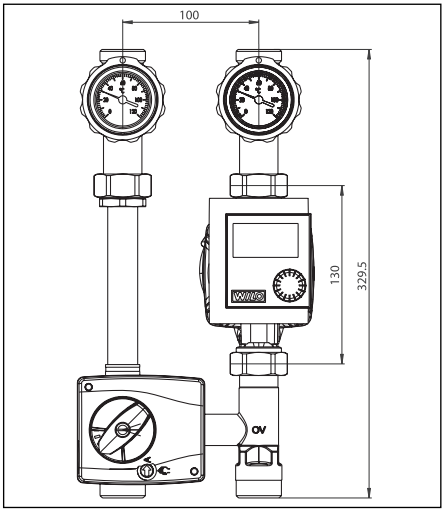
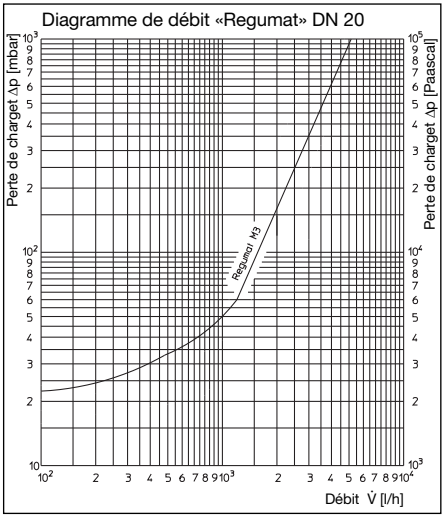


Fig. 28 Encombrements «Regumat M3-130» DN 20

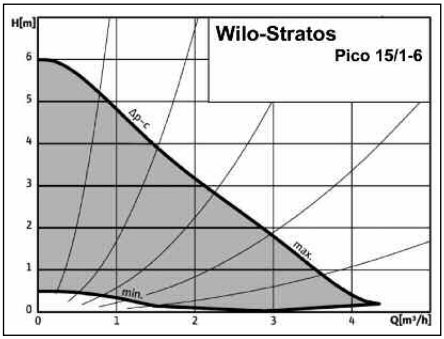
Données techniques

Dimension	DN 20
Température de service max.	120 °C
Pression de service max.	10 bar PN10
Valeur kvs	5,1
Pression d'ouverture clapet ATS	20 mbar
Raccordements	filetage mâle G1 à joint plat
Longueur circulateur	130 mm, filetage mâle G1

Diagramme de perte de charge



Courbes de fonctionnement



6.2 Station d'eau potable «Regumaq XH»

La station d'eau potable «Regumaq XH» est un groupe de robinetterie à réglage hydraulique et thermostatique avec échangeur de chaleur à plaques pour la préparation hygiénique d'eau chaude sanitaire avec bouclage.

⚠ AVERTISSEMENT

Les normes actuelles, règles techniques d'usage et directives locales doivent être respectées lors de la conception d'une installation de production d'E.C.S.! Lors de l'exploitation d'un bouclage d'E.C.S. les directives d'hygiène selon la fiche technique DVGW W551 sont à respecter!

ATTENTION

Un échangeur de chaleur à plaques en acier inoxydable brasé au cuivre ou au nickel fait partie de la station d'eau potable.
Merci d'observer les recommandations du document «Exigences imposées pour l'eau potable lors de l'utilisation des stations d'eau potable et des stations d'appartement» sur www.oventrop.com. Le bureau d'études et l'utilisateur de l'installation doivent tenir compte des substances présentes dans l'eau et des facteurs influant sur la corrosion et la formation de tartre dans le système et les évaluer dans tous les cas de figure, au risque d'engager leur responsabilité.

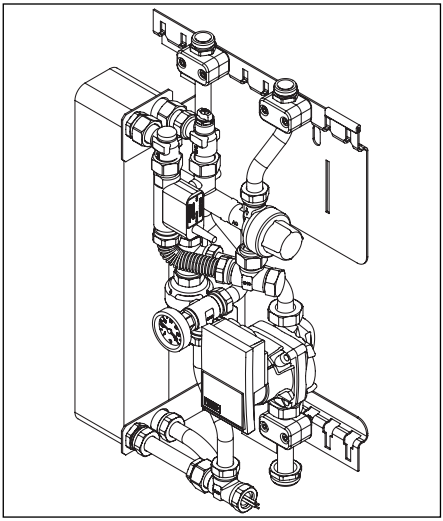


Fig. 29 Vue d'ensemble «Regumaq XH»

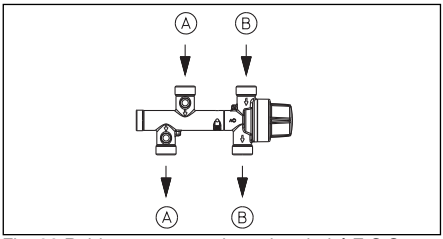


Fig. 30 Robinet pressostatique de priorité E.C.S.

A Circuit ballon d'eau chaude - retour
B Arrivée d'eau potable froide

Circuit primaire (circuit ballon d'eau chaude)

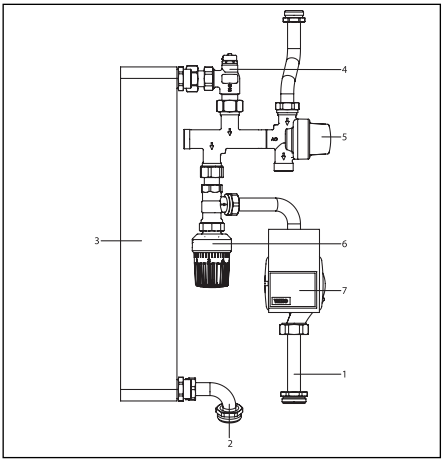


Fig. 31 Circuit primaire

1 Retour ballon d'eau chaude
2 Aller eau chaude sanitaire ballon d'eau chaude
3 Echangeur de chaleur à plaques
4 Raccordement de purge
5 Robinet pressostatique de priorité E.C.S.
6 Régulateur de température
7 Circulateur (circuit ballon d'eau chaude)

Circuit secondaire (circuit eau potable)

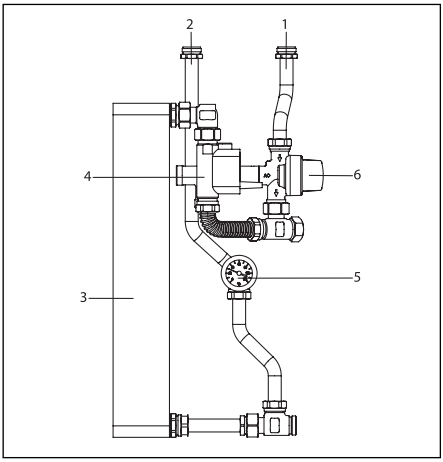


Fig. 32 Circuit secondaire

1 Arrivée d'eau potable
2 Sortie d'eau chaude sanitaire
3 Echangeur de chaleur à plaques
4 Commutateur de flux
5 Affichage température de puisage
6 Robinet pressostatique de priorité E.C.S.

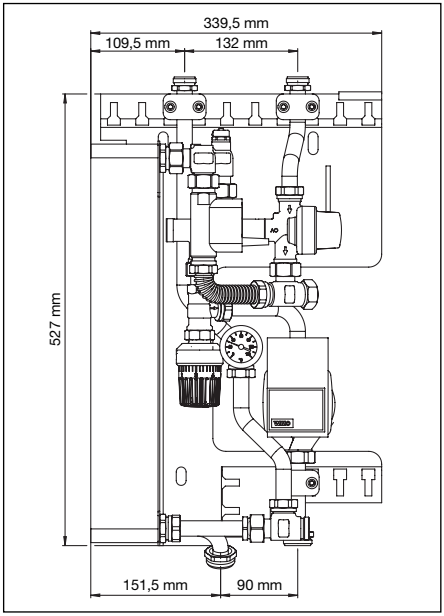


Fig. 33 Encombrements, cotes en mm

Réglage du régulateur de température
Le régulateur de température est réglé en sortie d'usine sur la position 2 ce qui correspond à une température d'eau d'environ 45°C. Ce réglage peut être adapté à la température d'eau potable souhaitée.

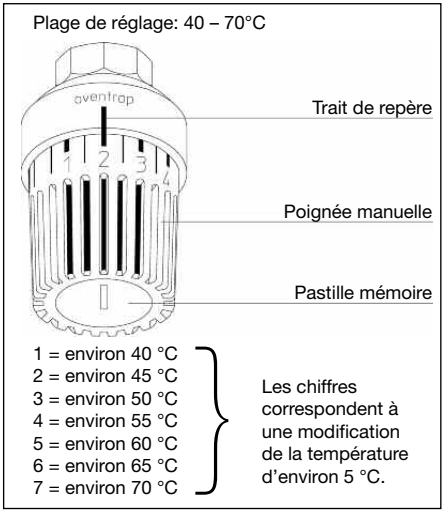


Fig. 34 Régulateur de température

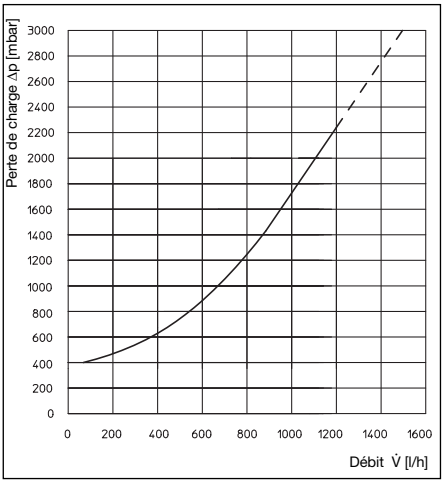
Données techniques

Données techniques générales	
Pression de service max. (côté primaire)	6 bars
Pression de service max. (côté secondaire)	10 bars
Température de service max.	95 °C
Hauteur de refoulement max. (côté primaire)	6 m
Nombre de plaques échangeur de chaleur	30
Kv (côté primaire)	1,85
Kv (côté secondaire – en service puisage)	0,76
Kv (côté sécondaire – en service bouclage)	0,96
Pression minimale d'eau froide (avec une capacité de puisage nominale de 20 l/min)	3,5 bars*
Fluide	
Côté primaire	Eau de chauffage
Côté secondaire	Eau potable
Matériaux	
Robinetterie	laiton / laiton résistant au dézingage
Joints	EPDM / AFREE 400
Isolation	Polypropylène expansé
Tubes	Acier inoxydable 1.4401 / 1.4404
Echangeur de chaleur en acier inoxydable, brasé au cuivre	Acier inoxydable 1.4401 Etain à braser cuivre
Echangeur de chaleur en acier inoxydable, brasé au nickel	Acier inoxydable 1.4401 Etain à braser nickel
Raccordements	
Raccordements (côté primaire)	G1 à joint plat
Raccordements (côté secondaire)	G¾ à joint plat

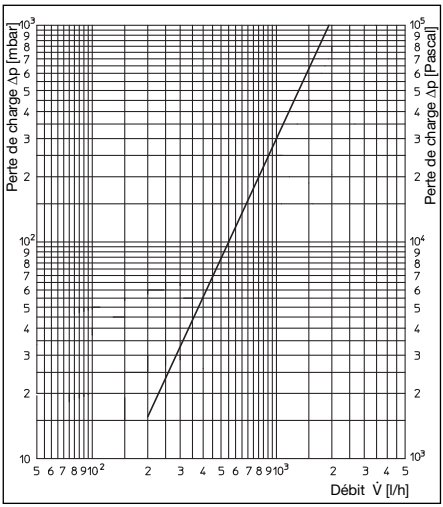
* en cas de débits de puisage plus importants, la pression doit être augmentée conformément

Diagramme de débit

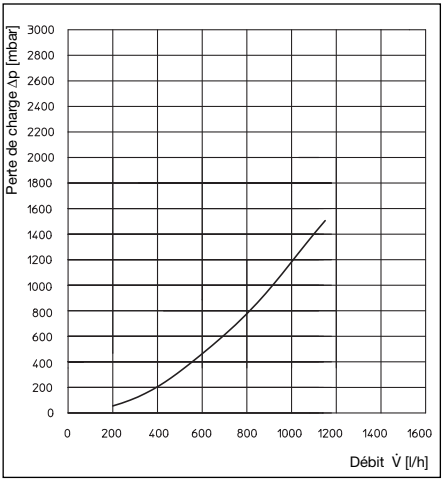
Perte de charge circuit secondaire (circuit eau potable) en puisant de l'eau potable



Perte de charge circuit primaire (circuit ballon d'eau chaude) avec puisage d'eau maximal

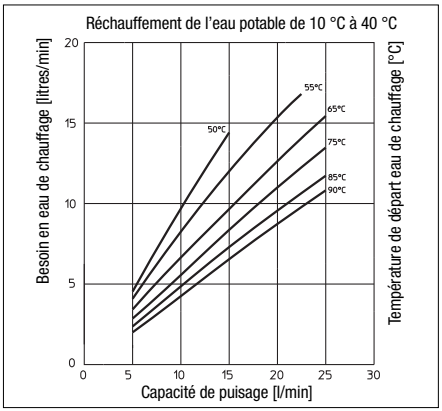


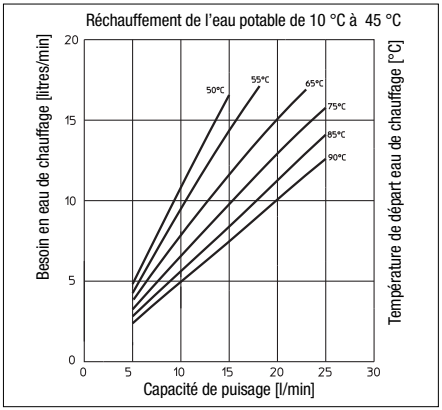
Perte de charge circuit secondaire (circuit eau potable) en service bouclage

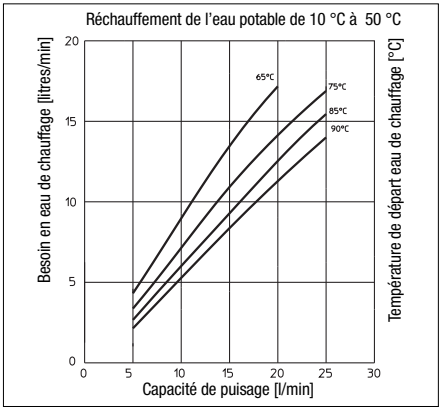


Besoin en eau de chauffage / température de retour

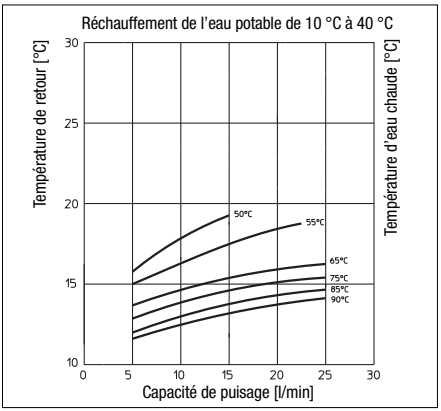
Besoin en eau de chauffage

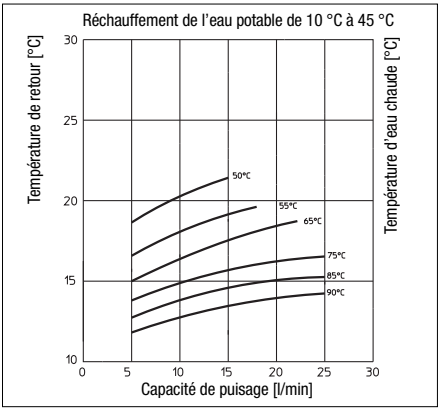


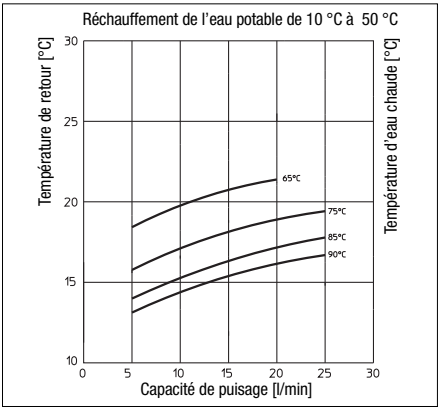




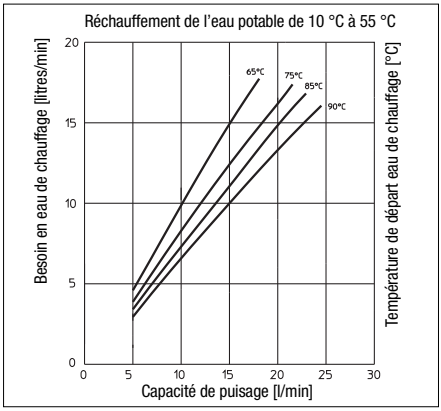
Température de retour

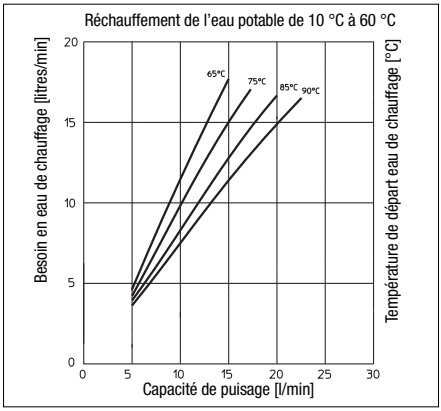




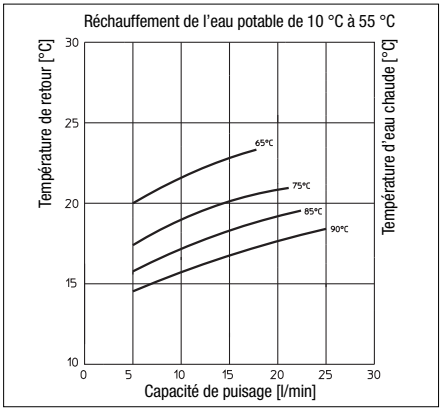


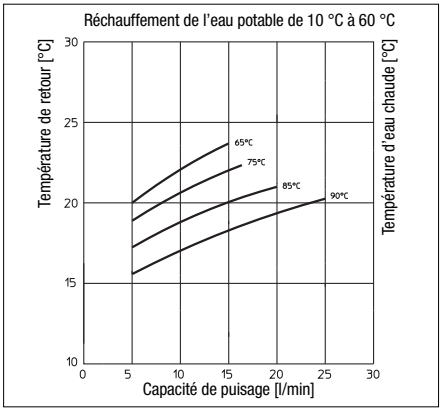
Besoin en eau de chauffage



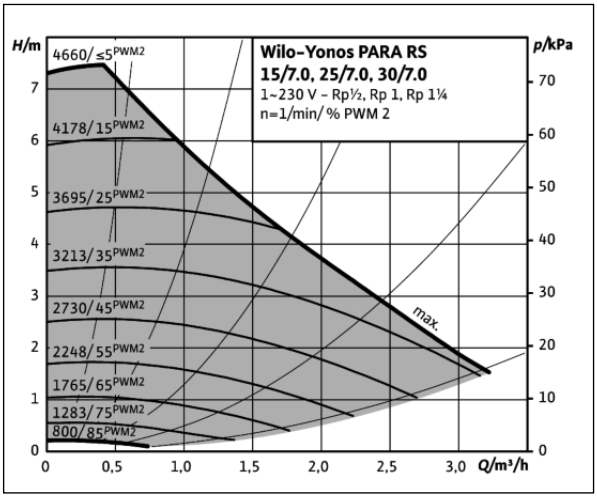


Température de retour





Courbe de fonctionnement
Wilo-Yonos PARA RS 15/7



6.3 Station solaire «Regusol L-130» DN 20

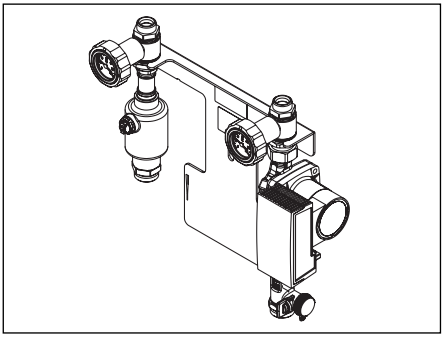


Fig. 35 «Regusol L-130» DN 20

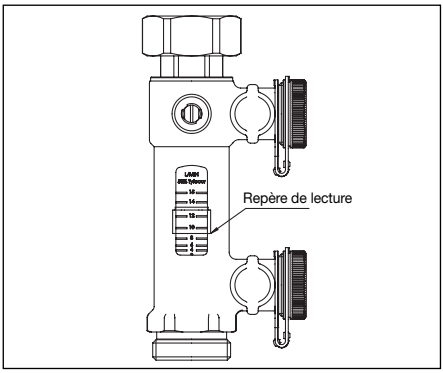


Fig. 36 Robinet d'équilibrage

Données techniques

Température de service max.	120 °C
Pression de service max.	6 bar PN10
Soupape de sécurité	6 bar
Plage de débit	2-15 l/min
Pression d'ouverture clapets ATS	20 mbar

Raccordements
G ¾ pour raccord à serrage
G ¾ à joint plat vers le ballon d'eau chaude

Encombrements:

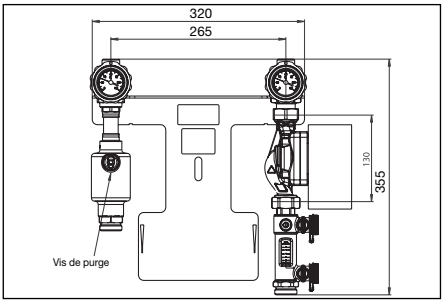


Fig. 37 Encombrements «Regusol L-130» DN 20

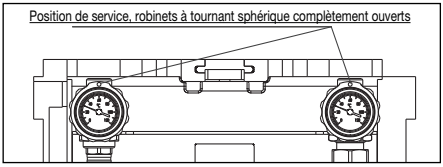


Fig. 38 Remplissage et rinçage de l'installation, position de service

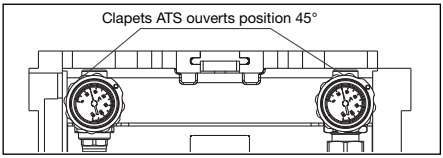


Fig. 39 Clapets ATS ouverts

⚠ DANGER

Risque de mort!
En pleine période de service, les robinets à tournant sphérique de la station solaire **doivent** être ouverts.

Le capteur doit être protégé de toute surpression par une soupape de sécurité et un vase d'expansion à membrane. (Voir aussi notice d'utilisation «Construction, mise en service et entretien d'installations solaires thermiques» sous www.oventrop.com).

Mise en service station solaire

⚠ AVERTISSEMENT

- Ne jamais remplir l'installation de fluide caloporteur en cas de températures de capteur élevées! En cas de rayonnement solaire, couvrir et laisser refroidir les capteurs!
- Risque de brûlure en cas de températures élevées dans le circuit solaire (capteurs > 60°C)! Dans le cas d'un rayonnement solaire intense, de la vapeur peut se produire dans les capteurs.
- Le niveau de pression admis se contrôle en amont du vase d'expansion.

Rinçage du circuit solaire
- Rincer le circuit solaire à l'aide de fluide caloporteur.
- Ne pas actionner la pompe de remplissage pendant une marche à sec.
- Utiliser un filtre (intégré dans la plupart des stations de remplissage mobiles).

Station de remplissage mobile
Une station de remplissage mobile (réf. Oventrop 136 42 40) sert au rinçage et au remplissage rapide et propre d'installations solaires thermiques – un dégazage parfait est donc garanti.
L'unité compacte se composant d'une pompe, d'un bidon pour le liquide caloporteur, d'un filtre et d'une fixation pour tuyaux est montée sur un chariot robuste et peut donc être transportée facilement.

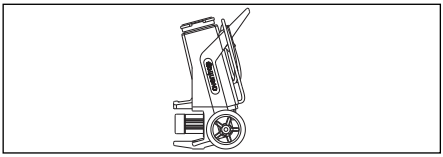


Fig. 40 Station de remplissage mobile

Contrôle d'étanchéité
- Procéder au contrôle visuel de tous les points de raccordement.
- Pression d'essai 4-5 bar
- Des fluctuations de pression peuvent se produire à cause d'un rayonnement solaire variable.

Remplissage et purge du circuit solaire
- Mettre les robinets à tournant sphérique et le clapet ATS en position de service (comme fig. 35).
- Ouvrir les deux robinets de vidange et de remplissage à tournant sphérique du robinet d'équilibrage.
- Le robinet à tournant sphérique pour le réglage au débitmètre doit être complètement ouvert (fente en position horizontale).
- Actionner la pompe de remplissage.
- Faire tourner la pompe de remplissage jusqu'à l'évacuation complète des bulles d'air dans le bidon. Ce procédé peut prendre 30-90 min.
- Après avoir atteint la pression souhaitée, fermer les robinets de vidange et de remplissage à tournant sphérique du robinet d'équilibrage.

Réglage de la pression de l'installation
- Condition: Pression correct en amont du vase d'expansion lors de l'installation. Dans des installations remplies, la pression en amont peut seulement être déterminée si le vase d'expansion est fermé et sans pression.
- La pression de l'installation peut à nouveau diminuer suite à un dégazage d'air pendant les jours qui suivent le remplissage.

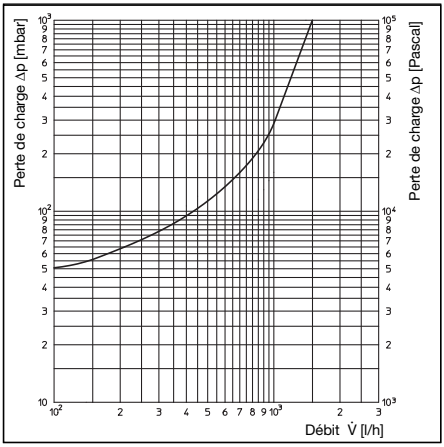
Conseil
Régler la pression de l'installation à environ 0,1 - 0,2 bar au-dessus de la valeur indiquées dans le tableau lors du remplissage.

Hauteur de l'installation [m]	Pression en amont vase d'expansion à membrane [mbar]	Pression de l'installation* [bar]
5	0,9-1.0	1,2-1,3
8	1,2	1,5
10	1,7	2,0
15	2,3	2,6
20	2,8	3,1

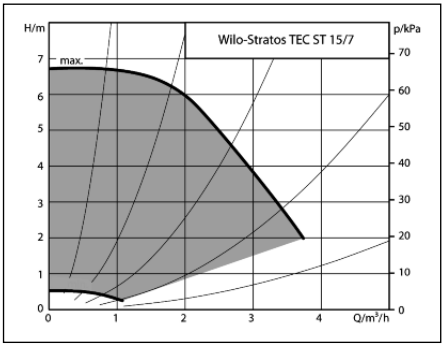
*avec une température ambiante de l'échangeur de chaleur (environ 20 °C)

Réglage du débit
Le débit est réglé automatiquement.

Diagramme de débit:



Courbe de fonctionnement:



6.4 Régulateur «Regtronic RS-B»
Toutes les informations et données importantes du régulateur figurent dans la notice 138 35 65 81 jointe au régulateur «Regtronic RM-B/RS-B».

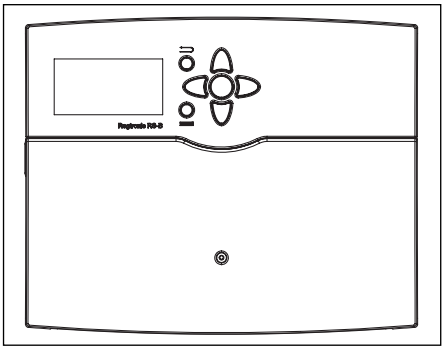


Fig. 41 Régulateur «Regtronic RS-B»

6.5 Ballon d'eau chaude

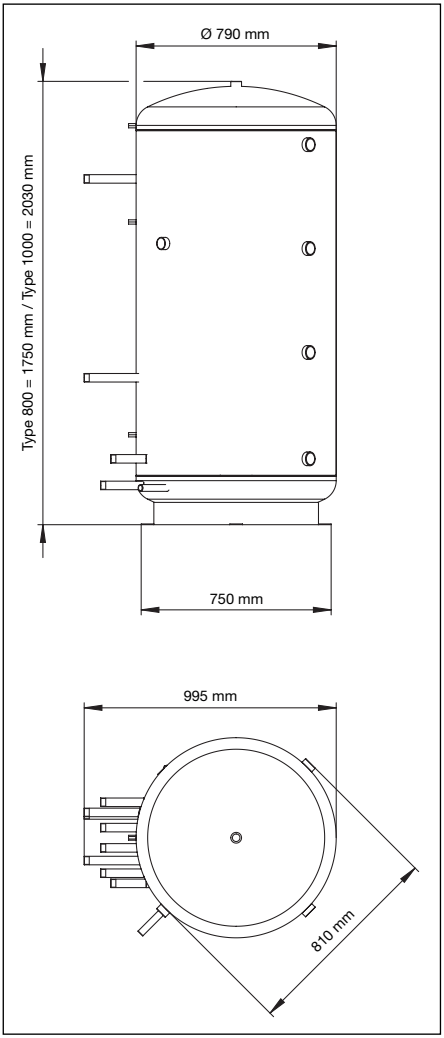


Fig. 42 Encombrements ballon d'eau chaude sans isolation

Données techniques ballon d'eau chaude:

Volume disponible:	Type 800 / Type 1000
– pour station d'eau potable:	200 l / 250 l
Serpentin solaire:	3,1 m² / 3,4 m²
Pression de service admissible:	3 bar
Température de service admissible:	95 °C
Géométrie manchon de la station:	filetage mâle G1
Géométrie manchon de chargement:	filetage femelle G 1 ½
Poids:	186 kg / 198,5 kg

Deux dispositifs de stratification:

1. Retour circuits de chauffage
2. Retour station d'eau potable

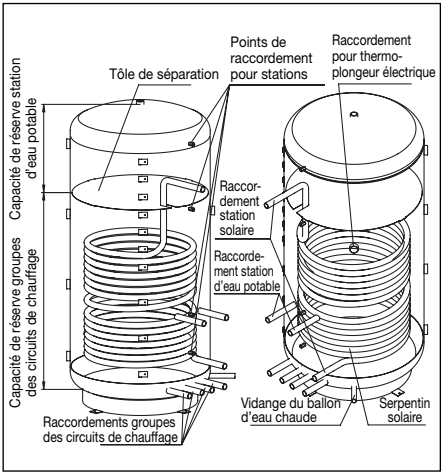


Fig. 43 Vue intérieure

Isolation ballon d'eau chaude

Matériel:	Fibres en polyester, blanc
Epaisseur du matériel:	140 mm
Classement au feu:	DIN 4102 B1
Conductivité thermique:	λ = 0,04 [W/(m*K)]
Point de fusion:	
· Fibres rembourrage:	environ 250 °C
· Fibres de fusion:	environ 110 °C
· Point de fusion:	à partir de 90 °C (commençant)

Revêtement isolant

Matériel:	Film plastique mou en chlorure de polyvinyle
Epaisseur du matériel:	0,4 mm
Classement au feu:	DIN 4102 B2

Couvercle de l'isolation

Matériel:	polystyrène
Classement au feu:	DIN 4102 B2

7 Accessoires

7.1 Circuit de chauffage «Regucor WHS» additionnel

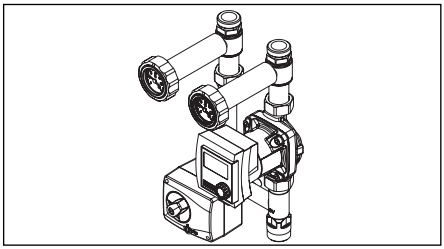


Fig. 44 «Regumat M3-130» DN 20 circuit de chauffage, circulateur Wilo Stratos PICO 25/1-6, avec vanne mélangeuse à trois voies et moteur (138 35 70).

7.2 Jeu de bouclage d'E.C.S «Regumaq XH»

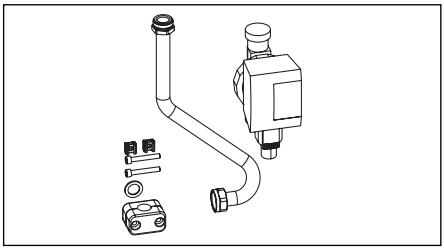


Fig. 45 Jeu de raccordement avec circulateur de bouclage Wilo Star Z Nova C et interrupteur horaire pour l'ajout à la station d'eau potable «Regumaq XH» d'un bouclage d'E.C.S. (138 10 47 **avec** circulateur de bouclage, 138 10 49 **sans** circulateur de bouclage).

7.3 Jeu de tubage

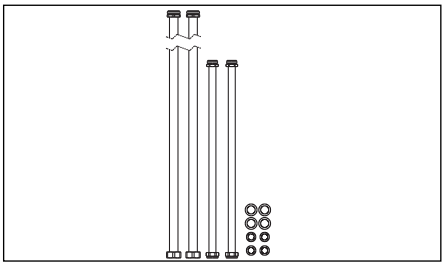


Fig. 46 Pour la station d'eau potable et le premier circuit de chauffage (138 35 80).

7.4 Jeu de tubage pour circuit additionnel

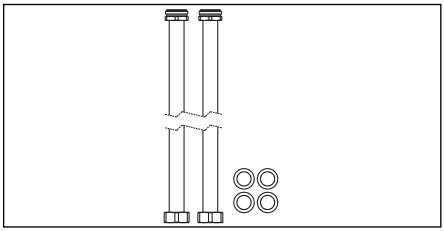


Fig. 47 Pour le deuxième circuit de chauffage (138 35 81).

7.5 Ensemble de sécurité solaire

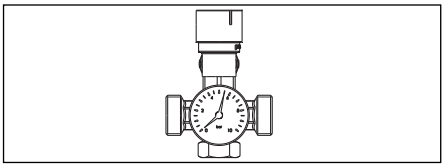


Fig. 48 Pour montage dans la colonne avec soupape de sécurité 6 bar pour raccords à serrage «Regusol» (136 42 48).

7.6 Aquastat électrique

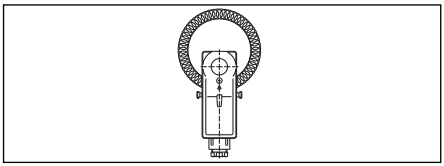


Fig. 49 Aquastat électrique avec réglage de température caché, plage de réglage 20-90°C (114 30 00).

7.7 Robinet mitigeur à trois voies «Tri-M TR» PN 16

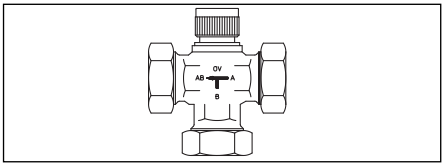


Fig. 50 Robinet à trois voies pour le réchauffage en deux zones (113 17 06).

7.8 Robinet inverseur à trois voies «Tri-D TR» PN 16

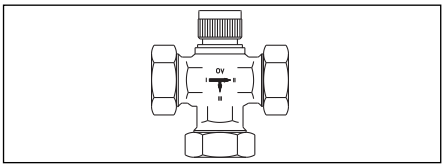


Fig. 51 Robinet à trois voies pour le réchauffage en deux zones (113 02 06).

7.9 Moteur

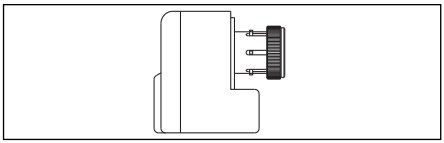


Fig. 52 Moteur pour la commande d'un robinet à trois voies (101 27 10).

7.10 Capuchon d'isolation

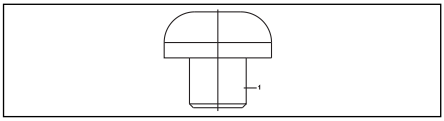


Fig. 53 Capuchon d'isolation pour taraudages de raccordement G 1 ½ (138 90 01).

7.11 Rallonge pour manchon de chargement

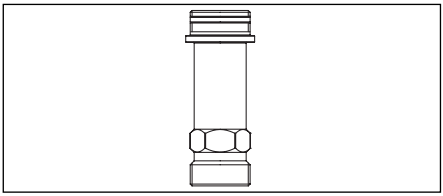


Fig. 54 Rallonge pour filetage femelle G 1 ½ (138 35 93).

7.12 Rallonge pour thermoplongeur électrique

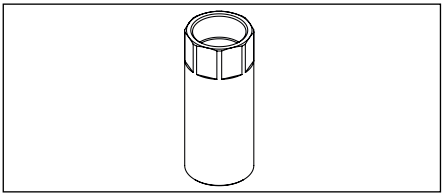


Fig. 55 Rallonge pour filetage femelle R 1 ½ (138 35 92).

7.13 Thermoplongeur électrique

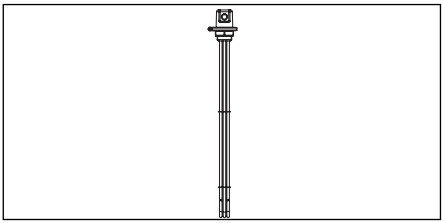


Fig. 56 Thermoplongeur électrique 9kW pour le réchauffage électronique de l'eau de chauffage dans le ballon tampon (138 35 90)

7.14 Combinaison régulateur / limitateur pour thermoplongeur électrique

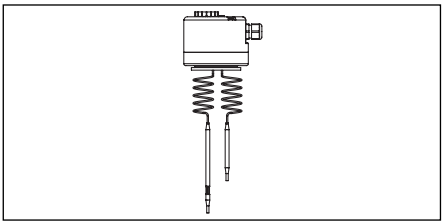


Fig. 57 Combinaison régulateur et limitateur pour le contrôle et la limitation autonome du thermoplongeur électrique (138 35 91).

8 Entretien

8.1 Entretien

Il est recommandé de faire entretenir l'unité centrale par une entreprise qualifiée au moins une fois par an afin de garantir un bon fonctionnement de l'installation.

Les travaux suivants devraient être effectués lors de l'entretien:
- Contrôle d'étanchéité de toute la robinetterie et de tous les raccordements

9 Démontage et élimination

⚠ AVERTISSEMENT

Risque de blessure en cas de qualification insuffisante!
Une mauvaise manipulation peut entraîner des dommages corporels et des dégâts matériels considérables.

Pour cette raison:
- Ne faire effectuer le démontage que par des professionnels qualifiés.
- Ne faire effectuer les travaux aux installations électriques que par des électriciens qualifiés.

9.1 Démontage

⚠ AVERTISSEMENT

Risque de blessure en cas de mauvais démontage!
Des énergies résiduelles accumulées, composants avec arêtes vives, pointes et angles à l'extérieur et l'intérieur de la station peuvent entraîner des blessures.

Pour cette raison:
- Avant le début des travaux, veillez à faire de la place.
- Manipuler des composants ouverts avec arêtes vives avec précaution.

Veillez à ce que les travaux soient réalisés dans la plus grande des propretés! Des composants ou outils traînants sont des sources d'accident.
Démonter les composants d'une manière professionnelle.

Avant le démontage:
- Mettre l'appareil hors circuit et empêcher une remise en service intempestive.
- Séparer toute alimentation en courant de l'appareil physiquement et décharger les énergies résiduelles accumulées.
- Eviter les chutes de matériel et veiller à la gestion de ces déchets dans le respect de l'environnement.

9.2 Elimination

Si un accord de reprise ou d'élimination n'a pas été conclu, les composants démontés sont à amener au recyclage:
- Les métaux sont à mettre à la ferraille.
- Amener les éléments plastiques au recyclage.
- Eliminer les autres composants selon la nature des matériaux.

ATTENTION

Dégâts causés à l'environnement en cas de mauvaise élimination!
Les déchets électriques, composants électroniques, lubrifiants et autres matières consommables sont des déchets dangereux et ne doivent être éliminés que par des personnes qualifiées!

Le service communal local ou des entreprises d'élimination spéciales donnent des renseignements concernant une élimination écologique.

10 Garantie

Les conditions de garantie valables au moment de la livraison s'appliquent.

“Regucor WHS”
Sistema di accumulo

Istruzioni di montaggio e di funzionamento per personale competente

Prima dell’installazione del Sistema d’accumulo, leggere attentamente le istruzioni di montaggio e di funzionamento!
Installazione, messa in funzione, utilizzo e manutenzione possono essere eseguite soltanto da personale tecnico addestrato!
Le istruzioni di montaggio e di funzionamento, come pure tutti i documenti correlati, devono essere consegnati al gestore dell’impianto!

Indice

1 Note generali 67
2 Avvisi di sicurezza 68
3 Trasporto, stoccaggio e imballaggio 68
4 Dati tecnici..... 68
5 Montaggio 70
6 Dati tecnici dei singoli gruppi 76
7 Accessori..... 87
8 Manutenzione e assistenza 88
9 Smontaggio e smaltimento…… ... 88
10 Garanzia..... 88

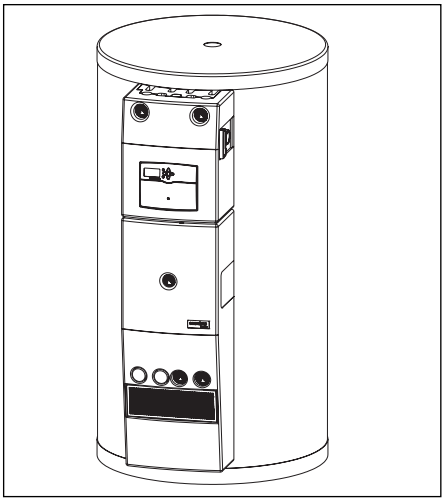


Fig. 1 “Regucor WHS”

1 Note generali

1.1 Informazioni per le istruzioni di montaggio e di funzionamento

Queste istruzioni di montaggio e di funzionamento servono al personale tecnico addestrato, per installare e mettere in funzione il Sistema d’accumulo in modo professionale.
Osservare i documenti correlati – i manuali d’istruzioni di tutti i componenti dell’impianto, come anche le norme tecniche in vigore.

1.2 Conservazione dei documenti

Queste istruzioni di montaggio e di funzionamento devono essere conservate dall’utilizzatore dell’impianto per poter essere consultate in caso di bisogno.

1.3 Tutela dei diritti d‘autore

Le istruzioni di montaggio e di funzionamento sono protette dai diritti d’autore.

1.4 Simboli

Le avvertenze riguardanti la sicurezza sono contrassegnate da simboli. Questi avvisi devono essere rispettati, per evitare infortuni, danni materiali e guasti.

PERICOLO PERICOLO indica una situazione di immediato pericolo, che può provocare la morte o gravi lesioni, se le misure di sicurezza non vengono rispettate.

AVVISO AVVISO indica una situazione di possibile pericolo, che può provocare la morte o gravi lesioni, se le misure di sicurezza non vengono rispettate.

PRUDENZA PRUDENZA indica una situazione di possibile pericolo che può provocare lesioni modeste o lievi, se le misure di sicurezza non vengono rispettate.

ATTENZIONE ATTENZIONE indica possibili danni materiali che possono insorgere se le misure di sicurezza non vengono rispettate.

Per ulteriori informazioni sulla ns. organizzazione commerciale nel mondo potete consultare il ns sito www.oventrop.com.

Salvo modifiche tecniche.

138355080 03/2014

2 Misure di sicurezza

2.1 Utilizzo corretto

La sicurezza di funzionamento è garantita soltanto con un utilizzo corretto del Sistema di accumulo.
E' vietato ed è considerato scorretto ogni utilizzo non previsto e/o di altra natura del Sistema di accumulo. Qualsiasi utilizzo non previsto e/o di altra natura del Sistema d'accumulo è vietato ed è considerato come non conforme.

L'osservanza del manuale d'uso e d'istruzione rientra negli usi corretti del prodotto.

2.2 Pericoli che possono essere riconducibili al luogo d'impiego e al trasporto

Durante la progettazione del Sistema d'accumulo non sono stati contemplati casi d'incendio dovuti a cause esterne.

⚠ PERICOLO

Pericolo di scottature o ustioni!
Le tubazioni dell'acqua e l'acqua in uscita dal rubinetto possono essere molto calde (>60 °C).
Per questo:
- Indossare assolutamente indumenti e guanti di sicurezza in tutti i lavori eseguiti in prossimità di componenti caldi.
- Accertarsi, prima di tutti i lavori, che i componenti si siano raffreddati fino a temperatura ambiente.
- Eventualmente, prevedere già in fabbrica protezioni antiustioni.

3 Trasporto, stoccaggio e imballaggio

3.1 Verifica del trasporto

Al ricevimento della fornitura e prima del montaggio, verificarne la completezza ed eventuali danni causati dal trasporto.
Se sono rilevabili vizi di questo tipo o di altra natura, accettare la spedizione della merce con riserva. Inoltrare reclamo e osservare i termini dello stesso.

3.2 Stoccaggio

Stoccare il Sistema di accumulo alle condizioni sotto elencate:
- Non all'aperto. Conservare in luogo asciutto ed esente da polvere.
- Non esporre a fluidi aggressivi o a fonti di calore.
- Proteggere dai raggi solari e da vibrazioni meccaniche eccessive.
- Temperatura di stoccaggio: –20 °C fino a +60 °C,
- Umidità relativa dell'aria: max. 95%

3.3 Imballaggio

Tutti i materiali di imballaggio devono essere smaltiti nel rispetto dell'ambiente.

3.4 Montaggio, messa in funzione, manutenzione

ATTENZIONE

Nel sistema d'accumulo "Regucor WHS" viene utilizzato uno scambiatore di calore in acciaio brasato rame o nickel. Il progettista e il gestore dell'impianto sono responsabili del controllo delle sostanze contenute nell'acqua e dei fattori che potrebbero influire sulla corrosione e sulla formazione di calcare nel sistema e della valutazione delle condizioni reali d'impiego.

⚠ PERICOLO

Pericolo di morte!
Durante il funzionamento le valvole a sfera del Gruppo solare **devono** essere aperte.

⚠ PERICOLO

Pericolo di morte per insufficiente competenza del personale!
Un montaggio improprio può comportare danni rilevanti a persone e cose.
Per questo motivo:
fare eseguire montaggio, messa in servizio, manutenzione e riparazione a personale competente e autorizzato (VDE, EN 12975 & DIN 4807).

⚠ AVVISO

Per un funzionamento corretto dell'impianto si deve provvedere allo sfiato completo delle tubazioni e al risciacquo delle stesse.
I relativi componenti (disareatore, ecc.) devono essere nel caso forniti in cantiere.
E' necessario garantire il mantenimento di una adeguata pressione dell'impianto!

3.5 Ricambi

⚠ AVVISO

Pericolo di lesioni per impiego di ricambi non originali!
L'impiego di ricambi non originali o difettosi può comportare avarie, malfunzionamenti o guasto totale del prodotto e pregiudicarne la sicurezza.
Per questo motivo:
- Utilizzare soltanto ricambi originali della casa produttrice.

4 Dati tecnici

Mezzo: Fluidi non aggressivi (ad es. acqua e miscele adeguate di acqua-glicole in conformità al VDI 2035). Non adatto al vapore, acqua per piscine e a mezzi aggressivi o a contenuto oleoso.

⚠ PERICOLO

Tramite misure adeguate (ad es. valvole di sicurezza) garantire che le pressioni minime e massime di esercizio, come anche le temperature minime e massime di esercizio non siano superiori o inferiori ai valori soglia.

4.1 Dimensioni

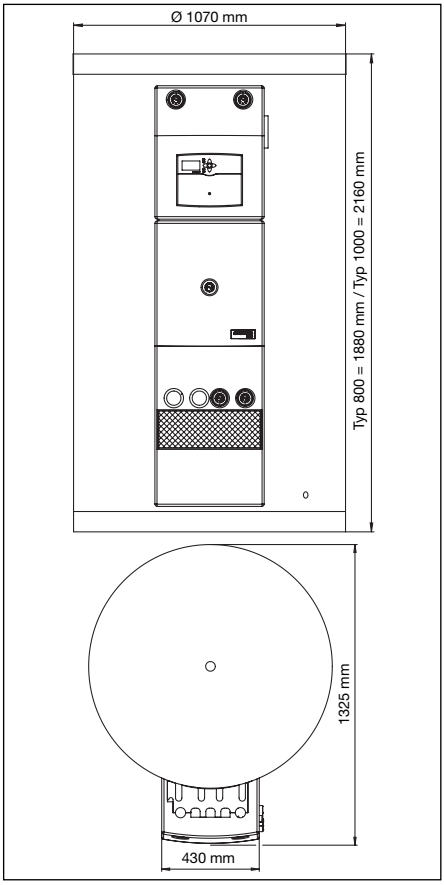


Fig. 2 Dimensioni

4.2 Quote di montaggio

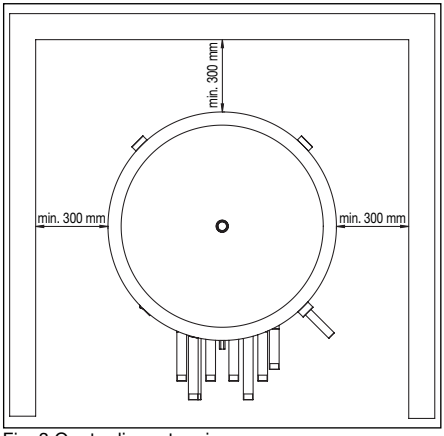


Fig. 3 Quote di montaggio

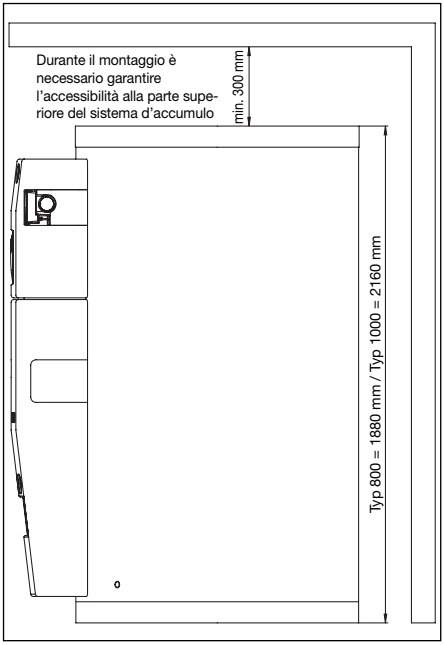


Fig. 4 Quote di montaggio

AVVISO

Per il Sistema di accumulo si deve garantire una posizione sicura, su una superficie di appoggio piana.

ATTENZIONE

Vasca di recupero / scarico sul fondo
Nell'installazione del serbatoio, in particolare nei sistemi di accumulo montati sul tetto, è prescritto l'uso di una vasca di recupero. In caso di installazione in cantine, il serbatoio deve disporre di uno scarico per l'eventuale deflusso di acqua.

5 Montaggio

- Rimuovere l'isolamento del serbatoio
- Rimuovere i tappi di chiusura dai bocchettoni di caricamento
- Avvitare le prolunghe dei bocchettoni di caricamento con il lato autoadesivo fino a battuta nei bocchettoni di caricamento necessari

ATTENZIONE

In caso servano più di due bocchettoni è necessario utilizzare le prolunghe (codice 138 35 93)!

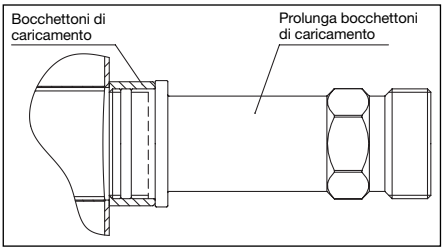


Fig. 5 Prolunga montata per bocchettone di caricamento

- Tagliare il rivestimento isolante lungo la linea perforata nei punti necessari e poi premere
- Posizionare i sensori di temperatura per il serbatoio sui relativi morsetti.
- Posizionare e applicare il rivestimento isolante sui collegamenti del serbatoio

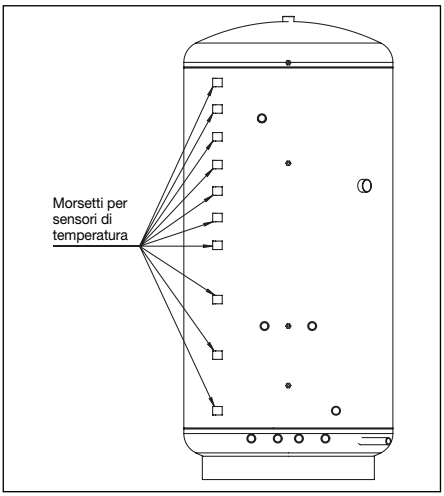


Fig. 6 Serbatoio con isolamento smontato

Indicazioni per il montaggio dell'isolamento
L'isolamento può essere montato soltanto se portato a temperatura (20-22 °C)!

- Comprimere l'isolamento in direzione della cerniera!
- La cerniera (1) deve essere chiusa da una seconda persona!

ATTENZIONE

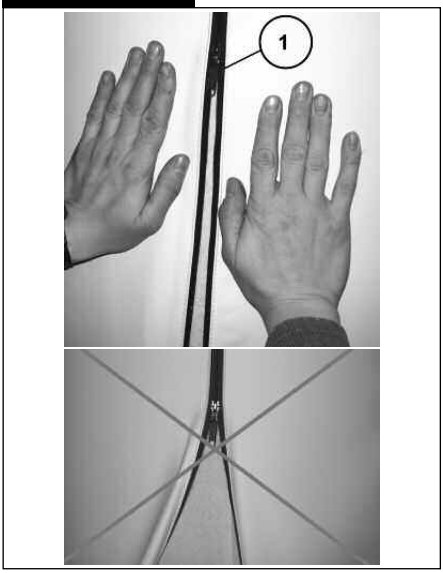


Fig. 7 Montaggio del rivestimento isolante

ATTENZIONE

Non servirsi mai della cerniera per esercitare una trazione. Ciò provocherebbe danni irreparabili al rivestimento!

- Montare il gruppo supporto (fig.8)
- Avvitare le aste filettate nei dadi saldati sul serbatoio (Attenzione: nel dado superiore si deve avvitare l'asta con lunghezza L = 230 mm! Avvitare le tre aste filettate L = 185 mm nei tre dadi inferiori!) (Fig. 8)
- Infilare i distanziali.
- Montare il supporto e fissarlo con rondelle e viti (Attenzione: per le due aste filettate inferiori utilizzare i dadi in ottone con lunghezza L = 22, e per i perni filettati superiori utilizzare dadi in acciaio!)

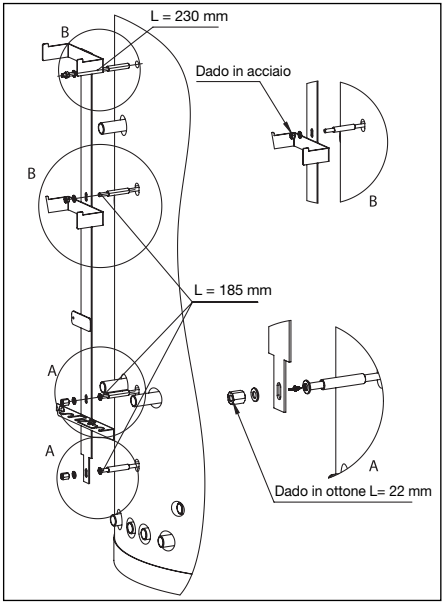


Fig. 8 Montaggio supporto gruppo

– Collegare con guarnizioni le valvole a sfera G1 al lato destro del serbatoio (Fig. 9 punto 1)
– Montare i cappucci di chiusura G1 con guarnizioni sul lato sinistro del serbatoio (Punto 2)
– Allentare la piastra di sicurezza dal supporto
– Inserire il guscio del gruppo del circuito di riscaldamento sul supporto e fissarlo con la piastra di serraggio, le rondelle e i dadi (Punto 3)

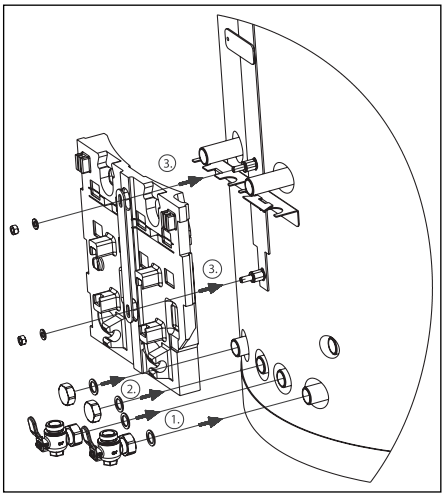


Fig. 9 Montaggio valvole a sfera e isolamento circuiti di riscaldamento

– Collegare i tubi corrugati metallici di lunghezza L=40 mm con le guarnizioni al gruppo del circuito di riscaldamento (Fig. 9 punto 1). In seguito agganciare il gruppo al supporto (Punto 2), posizionare la lamiera di sicurezza e fissarla al supporto (Punto 3)
– Collegare i tubi corrugati metallici alle valvole a sfera.
– Chiudere le valvole a sfera.

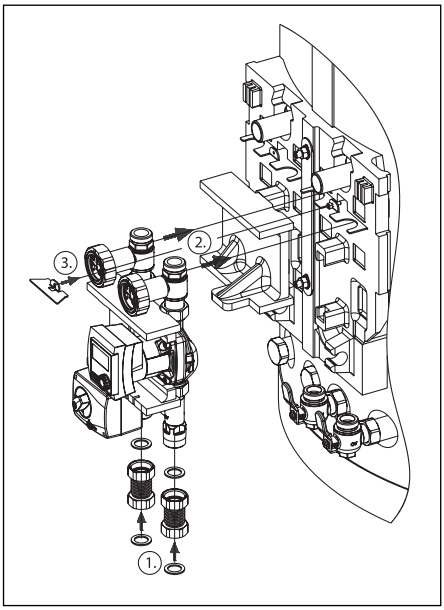


Fig. 10 Montaggio gruppo circuito di riscaldamento

ATTENZIONE

I collegamenti del circuito riscaldamento serbatoio devono essere utilizzati esclusivamente per l'allacciamento dei gruppi del circuito di riscaldamento!

– Collegare la tubazione al gruppo del circuito di riscaldamento sul serbatoio (Fig. 11 Punto 1) tramite il set di collegamento codice 1383580 e per il secondo circuito opzionale di riscaldamento tramite set con codice 1383581.
– Accertarsi che il collegamento di mandata e ritorno sia corretto.
– Inserire il guscio del gruppo ACS (Punto 2) e del gruppo solare (Punto 3) sul supporto.
– Avvitare le valvole a sfera per il collegamento del gruppo ACS sul serbatoio (Punto 4).

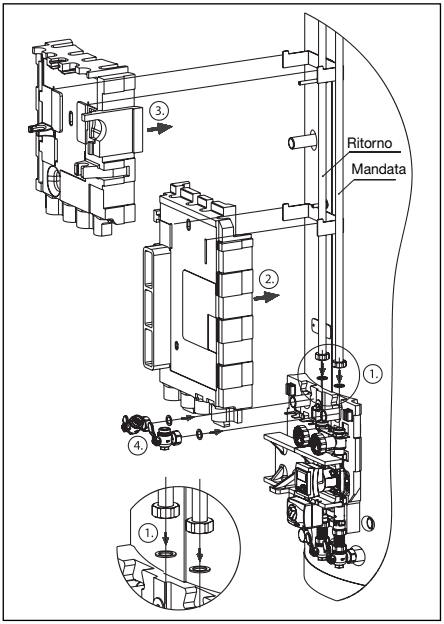


Fig. 11 Montaggio isolamenti termici

Set di collegamento codice 1383580 per il collegamento di un circuito riscaldamento e della stazione ACS.

Composto da:
2x tubo in acciaio (L = 1260 mm)
2x tubo in acciaio (L = 500 mm)
4x anello di tenuta per G 1
4x anello di tenuta per G ¾

Set di collegamento codice 1383581 per il collegamento del circuito di riscaldamento aggiuntivo codice. 1383581.

Composto da:
2x tubi in acciaio (L = 1260 mm)
4x anello di tenuta per G

– Agganciare il gruppo ACS (Fig. 12/13) al supporto.
– Proteggere da torsioni tramite vite di sicurezza e rondella.

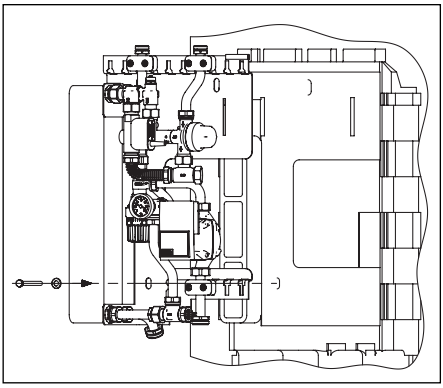


Fig. 12 Montaggio gruppo ACS

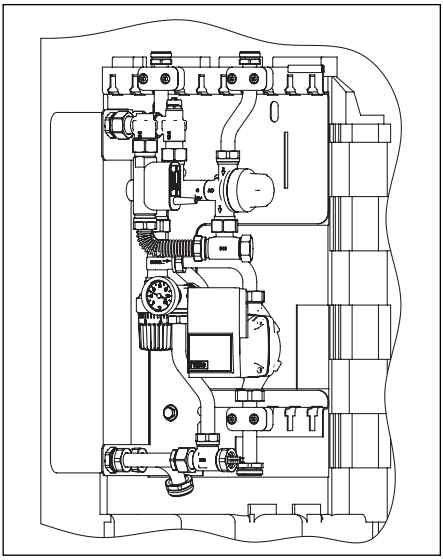


Fig. 13 Montaggio gruppo ACS

– Collegare il gruppo ACS mediante i tubi corrugati in metallo G 1 della lunghezza L = 110 mm con le valvole a sfera

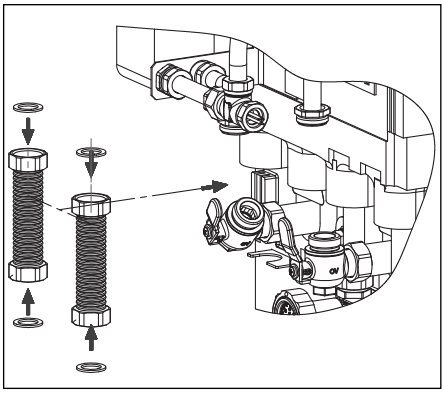


Fig. 14 Montaggio tubi corrugati in metallo

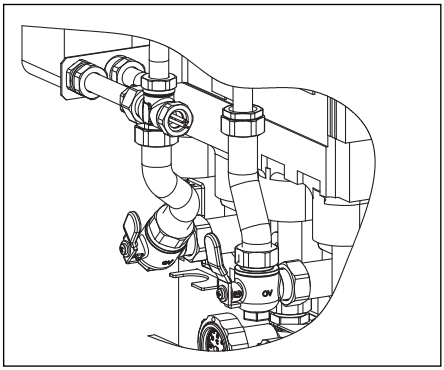


Fig. 15 Montaggio tubi corrugati in metallo

– Separare il regolatore del gruppo solare, come nella Fig. 16.

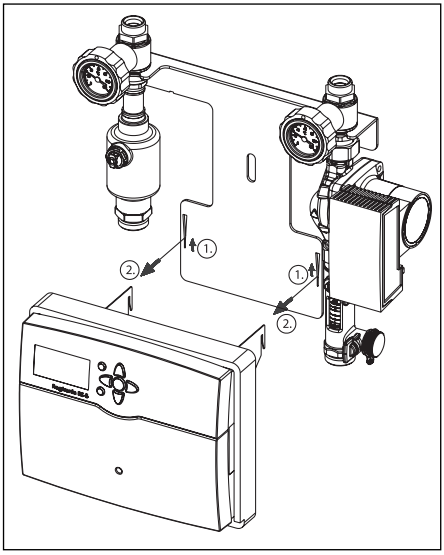


Fig. 16 Smontaggio della centralina

– Agganciare il gruppo solare al supporto (Fig 17 Punto 1) e fissare con una rondella e un dado di sicurezza (Punto 2)

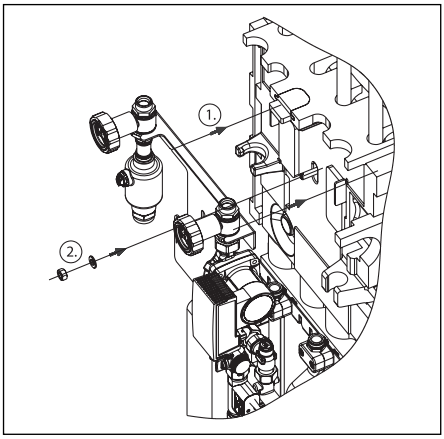


Fig. 17 Montaggio del Gruppo solare

– Collegare la mandata del Gruppo solare mediante il tubo corrugato isolato in metallo G1 (Fig.18) Lunghezza L = 85 mm ed il raccordo ad angolo al serbatoio.

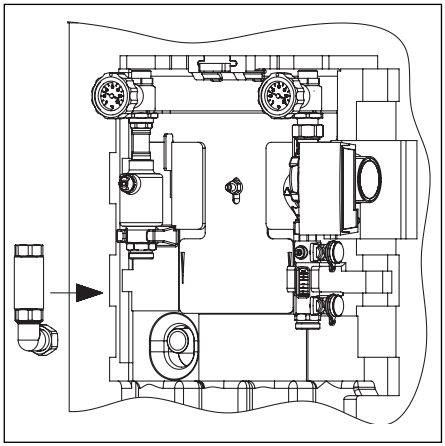


Fig. 18 Montaggio tubo corrugato in metallo per mandata gruppo solare

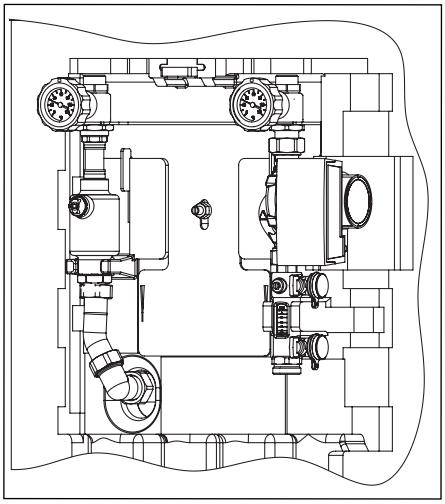


Fig. 19 Montaggio tubo corrugato in metallo

– Avvitare la valvola a sfera G 1 al serbatoio (Fig. 20 Punto1) e collegare al ritorno del gruppo solare (Punto 1) mediante il tubo corrugato piegato in metallo G1, Lunghezza L = 1150 mm (Punto 2).

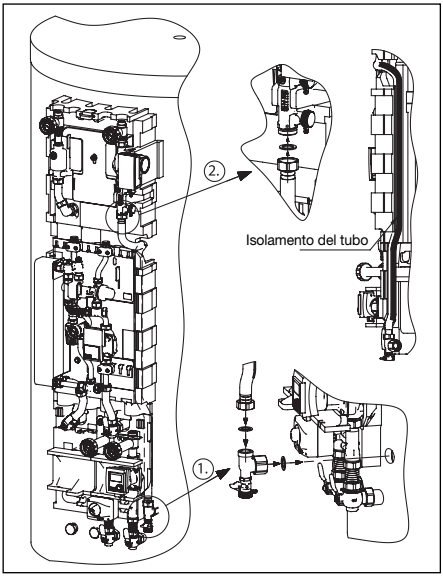


Fig. 20 Montaggio tubo ondulato in metallo per ritorno Gruppo solare

– Accertarsi che il tubo corrugato in metallo sia posato tra l'isolamento del serbatoio e l'isolamento termico del gruppo del circuito di riscaldamento e che sia protetto completamente durante il montaggio del guscio anteriore. (Fig. 21).

ATTENZIONE

L'isolamento del tubo corrugato deve trovarsi tra il tubo corrugato e l'isolamento per poter escludere la possibilità di causare danni all'isolamento durante il funzionamento!
In caso di necessità piegare successivamente!

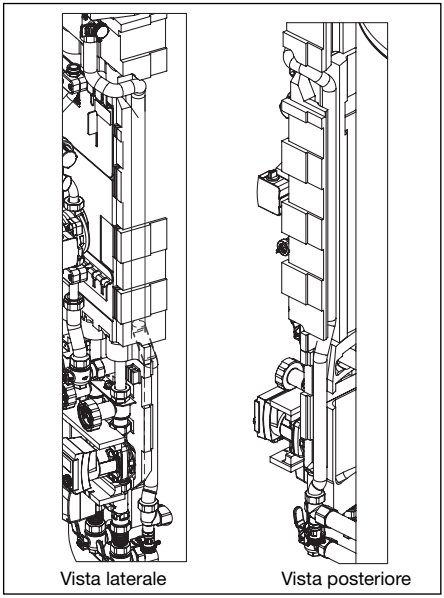


Fig. 21 Montaggio tubo ondulato in metallo per ritorno Gruppo solare

- Collegare i tubi del gruppo ACS al serbatoio tramite il set di collegamento, codice 1383580
- Agganciare la centralina nel supporto del gruppo solare.
- Posare i cavi della centralina nelle apposite canaline passacavo (fig. 22).

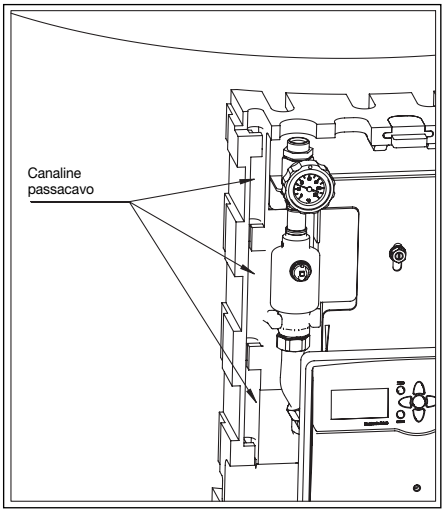


Fig. 22 Montaggio canalina passacavo

- Montare il guscio isolante anteriore del sistema ACS
- Montare il guscio isolante anteriore del gruppo solare
- Posizionare la targhetta del serbatoio a destra, accanto al gruppo solare, sull'isolamento del serbatoio (la targhetta è allegata alle istruzioni di montaggio e alla consegna è posizionata tra l'isolamento e la protezione del serbatoio).

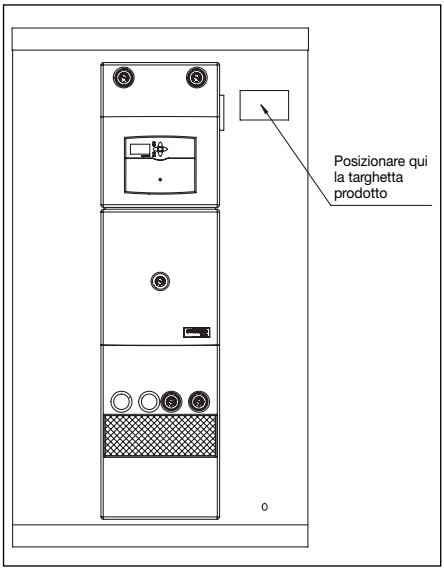


Fig. 23 Applicazione della targhetta

Tutte le tubazioni devono essere isolate accuratamente, per ridurre al minimo le dispersioni termiche

PERICOLO

Pericolo di morte e di danni materiali in seguito a uso improprio o ad installazione incompleta!
Per questo motivo:
Prima della messa in funzione (1a messa in servizio) verificare le seguenti condizioni:
- Le valvole a sfera del gruppo solare **devono** essere aperte!
- Nel circuito del gruppo solare **deve** essere installata la valvola di sicurezza con il vaso di espansione a membrana

6 Dati tecnici dei componenti

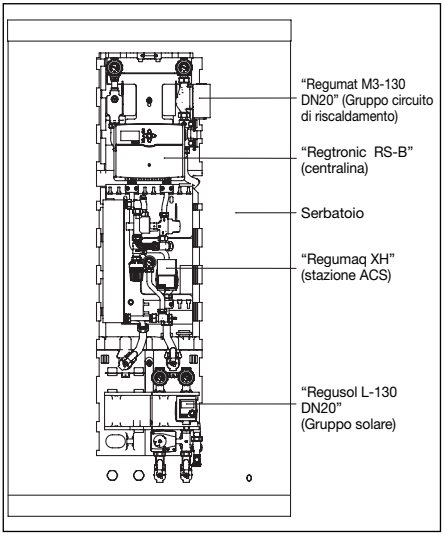


Fig. 24 Prospetto dei componenti

Avvertenza:
Ulteriori dati tecnici e diagrammi nelle schede tecniche dei singoli componenti!

6.1 Gruppo del circuito di riscaldamento "Regumat M3-130 DN20"

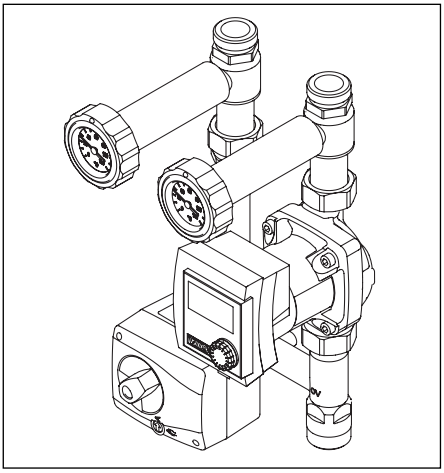


Fig. 25 "Regumat M3-130 DN20"

Valvole di ritegno
Le valvole di ritegno impediscono la circolazione naturale dell'acqua di riscaldamento, a pompa disinserita.

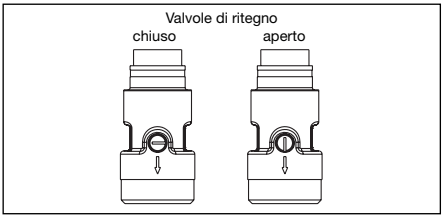


Fig. 26 Valvole di ritegno

In posizione di funzionamento la valvola di intercettazione è chiusa. Il flusso è possibile soltanto in direzione di pompaggio.
Durante la messa in funzione o la manutenzione (riempimento e risciacquo), la valvola d'intercettazione deve essere aperta.

Servomotore
Il servomotore NR230 del miscelatore a tre vie è comandato dalla centralina di sistema Oventrop "Regtronic RS-B" con comando a 3 punti.
L'angolo di rotazione è limitato a 90°.
Al raggiungimento dei finecorsa il servomotore viene disinserito elettricamente ed è senza corrente. In caso di guasti del sistema di regolazione l'azionamento può essere convertito in manuale tramite la manopola supplementare.

⚠ AVVISO

Il collegamento elettrico deve essere eseguito secondo le disposizioni di legge!

Comando a tre punti:

ATTENZIONE

Il senso di rotazione caldo/freddo dipende dalla posizione di installazione del miscelatore a tre vie (mandata-ritorno)

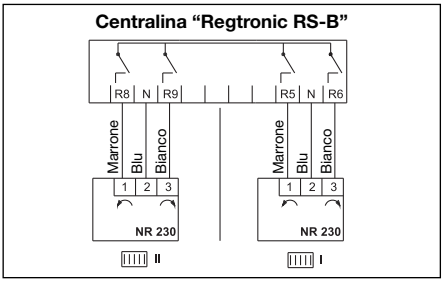


Fig. 27 Centralina

Dati tecnici:

Tensione di esercizio	230 V 50 Hz
Assorbimento	2,5 W
Classe di protezione	II (con isolamento di protezione)
Coppia	5 Nm
Tempo di corsa	140 s
Temperatura ambiente	0 °C bis + 50 °C
Lunghezza cavo collegamento	2,2 m

Avvertenza:
Negli impianti di riscaldamento con pompa di circolazione spenta, indipendentemente dalla pressione del circuito e nonostante la valvola di ritegno, è possibile che si verifichi ricircolo minimo dovuto a gravità. Le valvole di ritegno sono valvole d'intercettazione a tenuta.

Dimensioni d'ingombro

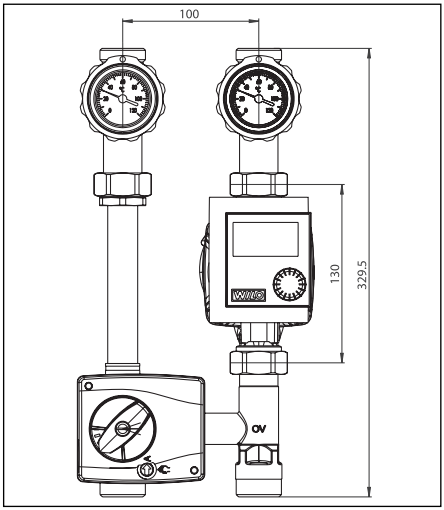
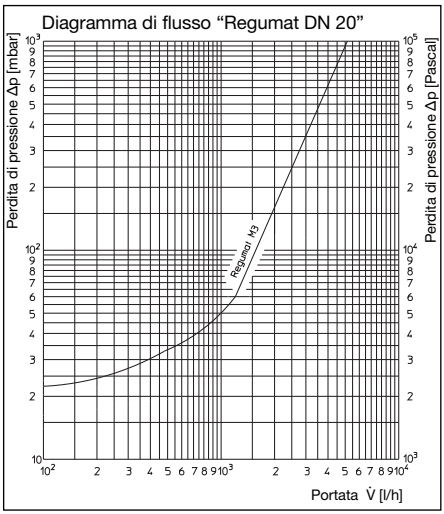


Fig. 28 Dimensioni "Regumat M3-130 DN20"

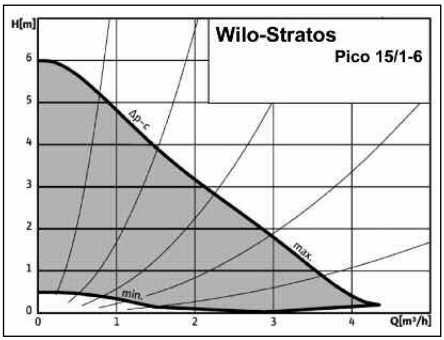
Dati tecnici

Diametro nominale	DN 20
Temperatura massima di esercizio	120 °C
Pressione massima di esercizio	10 bar PN10
valore-kvs	5,1
Pressione apertura valvola d'intercettazione	20 mbar
Collegamenti	G1 FM a tenuta piana
Interasse pompa	130 mm, G1 AG

Diagramma della perdita di pressione



Curva caratteristica della pompa



6.2 Gruppo ACS “Regumaq XH”

Il Gruppo ACS “Regumaq XH” è un gruppo premontato con regolazione idraulica e termostatica e scambiatore di calore a piastre per la produzione igienica di acqua calda sanitaria tramite il principio del flusso.

⚠ AVVISO

Nella costruzione di un impianto per la produzione di acqua calda sanitaria si devono rispettare le norme vigenti, le regole riconosciute della tecnica e le disposizioni locali!
In particolare, durante il funzionamento di un impianto con ricircolo si devono rispettare le disposizioni igieniche prescritte dal DVGW, foglio di lavoro W551!

ATTENZIONE

Nel gruppo ACS si utilizza uno scambiatore di calore a piastre in acciaio inox brasato a rame.
Leggere attentamente il documento “Requisiti richiesti per l’impiego di gruppi per la produzione dell’acqua calda sanitaria Oventrop” all‘indirizzo www.oventrop.com.
Il progettista e il gestore dell’impianto sono responsabili del controllo delle sostanze contenute nell’acqua e dei fattori che potrebbero influire sulla corrosione e sulla formazione di calcare nel sistema e della valutazione delle condizioni reali d’impiego.

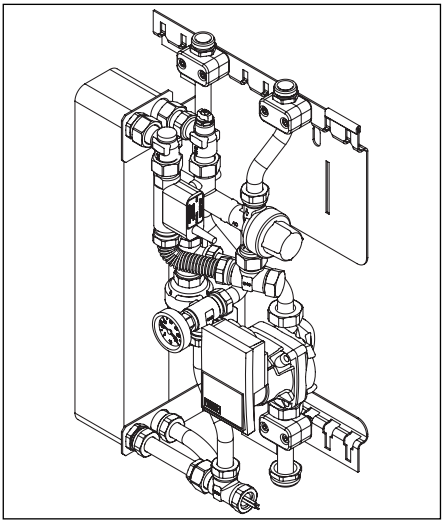


Fig. 29 Vista dall’alto “Regumaq XH”

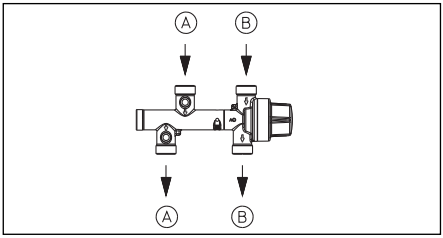


Fig. 30 Regolatore di flusso proporzionale

A Ritorno - Circuito serbatoio
B Alimentazione acqua sanitaria fredda

Circuito primario (Circuito serbatoio)

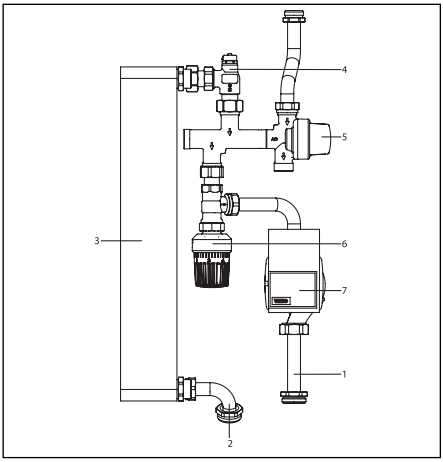


Fig. 31 Circuito primario

1 Ritorno serbatoio
2 Mandata acqua calda serbatoio
3 Scambiatore di calore a piastre
4 Attacco per disaeratore
5 Regolatore di flusso proporzionale
6 Regolatore termostatico di temperatura
7 Pompa (Circuito serbatoio)

Circuito secondario (Circuito acqua sanitaria)

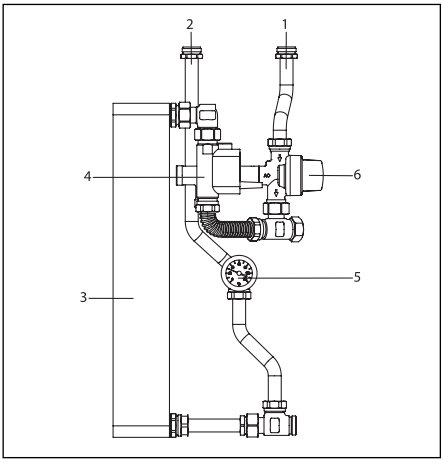


Fig. 32 Circuito secondario

1 Alimentazione acqua sanitaria
2 Uscita acqua sanitaria calda
3 Scambiatore di calore a piastre
4 Interruttore di flusso
5 Visualizzazione temperatura prelievo
6 Regolatore proporzionale di portata

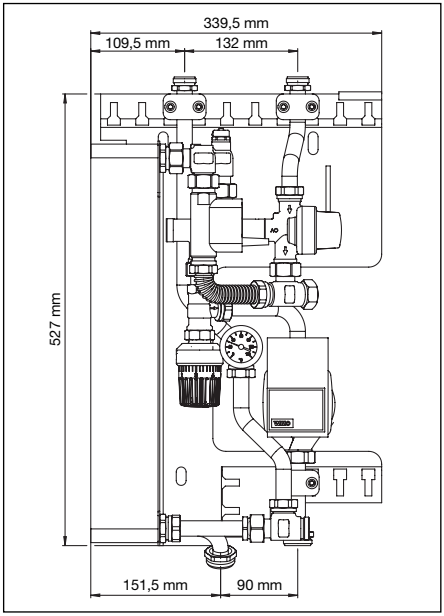


Fig. 33 Dimensioni nominali, dati in mm

Impostazione regolatore di temperatura
L'impostazione di fabbrica del regolatore di temperatura è sulla posizione 2. Ciò corrisponde ad una temperatura dell'acqua sanitaria di circa 45°C. L'impostazione può essere anche modificata a seconda della temperatura dell'acqua sanitaria desiderata.

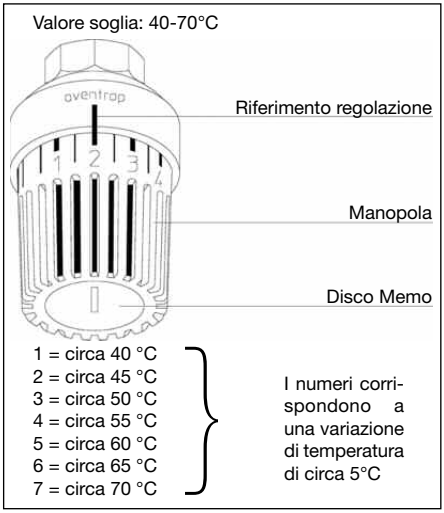


Fig. 34 Regolatore di temperatura

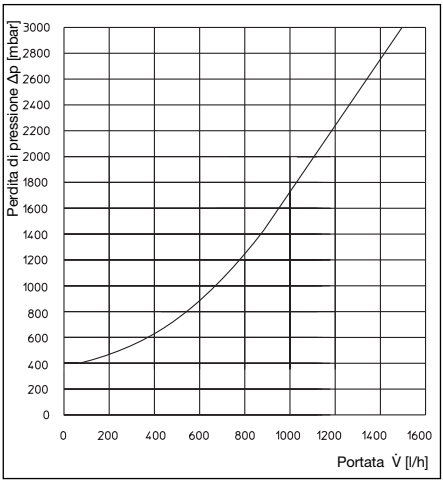
Dati tecnici

Dati tecnici generali	
Pressione massima di esercizio (lato primario)	6 bar
Pressione massima di esercizio (lato secondario)	10 bar
Temperatura massima di esercizio	95 °C
Prevalenza massima (lato primario)	6 m
N° piastre scambiatore di calore	30
Kv (lato primario)	1,85
Kv (lato secondario – funzionamento a prelievo)	0,76
Kv (lato secondario – funzionamento a ricircolo)	0,96
Pressione minima acqua fredda (portata nominale prelievo 20 l/min)	3,5 bars*
Fluido	
Lato primario	Acqua di riscaldamento
Lato secondario	Acqua sanitaria
Materiali	
Valvolame	ottone / ottone resistente alla dezincificazione
Guarnizioni	EPDM / AFREE 400
Isolamento	EPP
Tubi	Acciaio inox 1.4401 / 1.4404
Scambiatore di calore acciaio inox brasato a rame	Acciaio inox 1.4401 Brasatura rame
Scambiatore di calore acciaio inox brasato a nichel	Acciaio inox 1.4401 Brasatura Nichel
Collegamenti	
Collegamenti (lato primario)	G1 a tenuta piana
Collegamenti (lato secondario)	G¾ tenuta piana

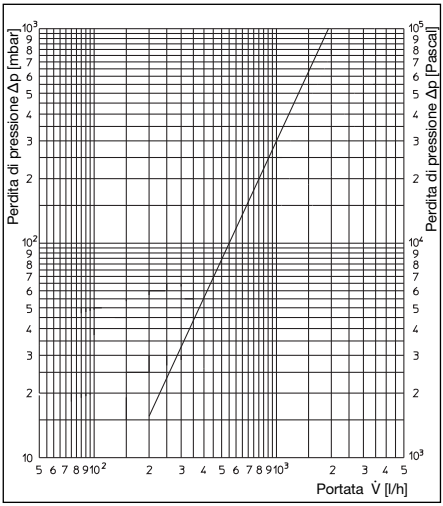
*Per quantità di prelievo superiori, aumentare la pressione in maniera adeguata

Diagramma di flusso

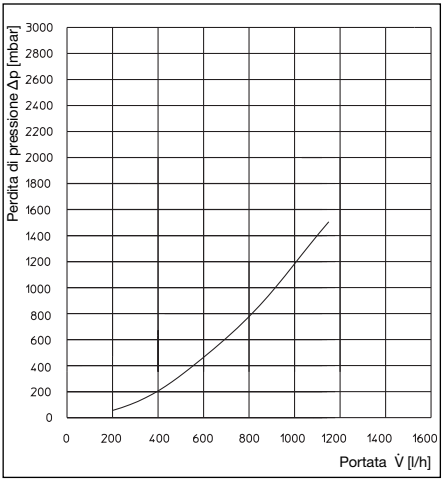
Perdita di pressione circuito secondario (circuito acqua sanitaria) al prelievo acqua sanitaria



Perdita di pressione circuito primario (Circuito serbatoio) a massimo prelievo acqua calda sanitaria

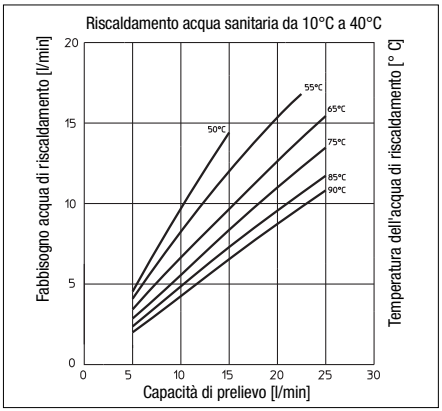


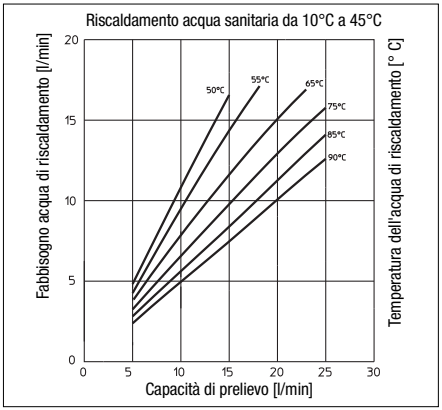
Perdita di pressione circuito secondario (acqua sanitaria) per funzionamento a ricircolo

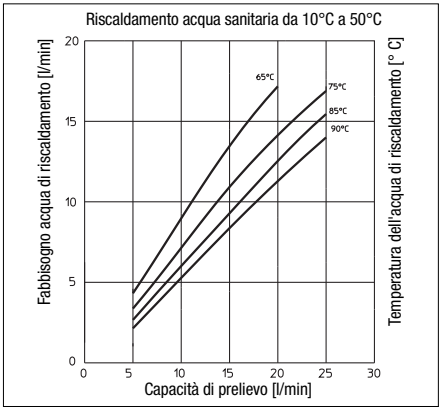


Fabbisogno acqua di riscaldamento / temperatura di ritorno

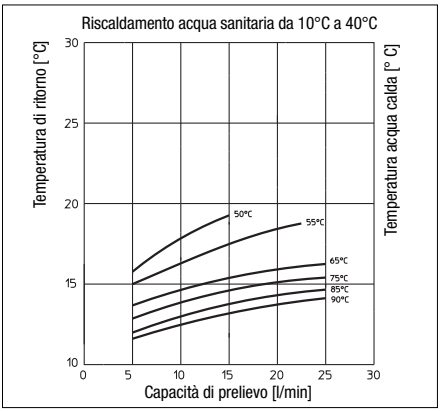
Fabbisogno acqua di riscaldamento

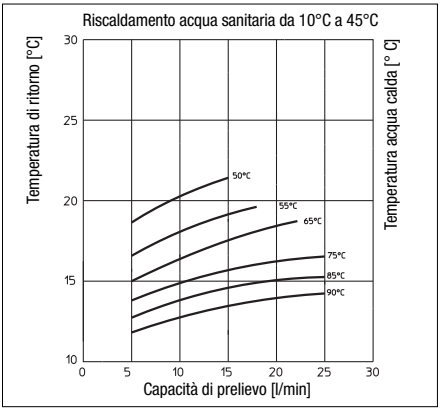


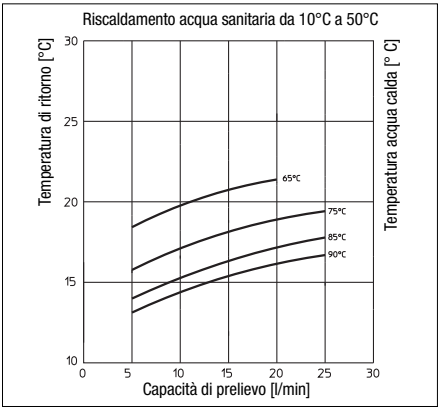




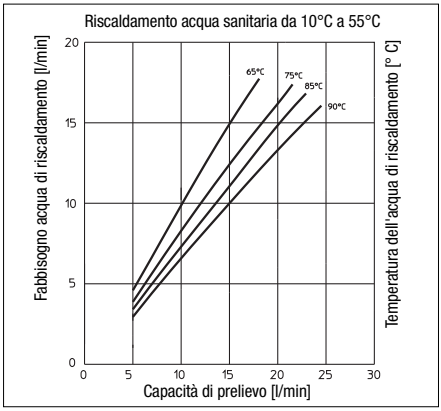
Temperatura del ritorno

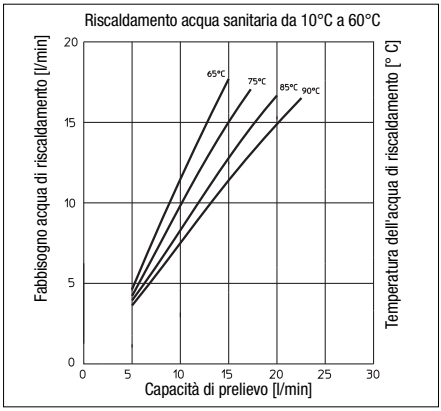




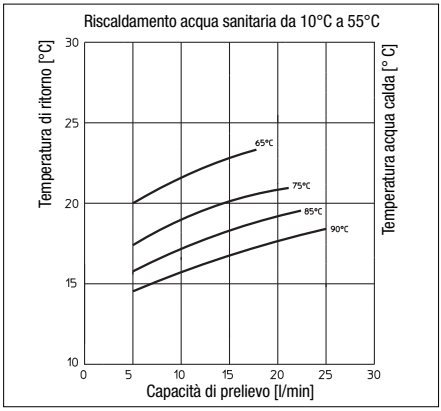


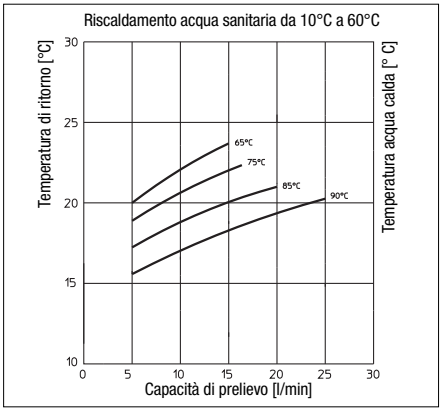
Fabbisogno acqua per riscaldamento



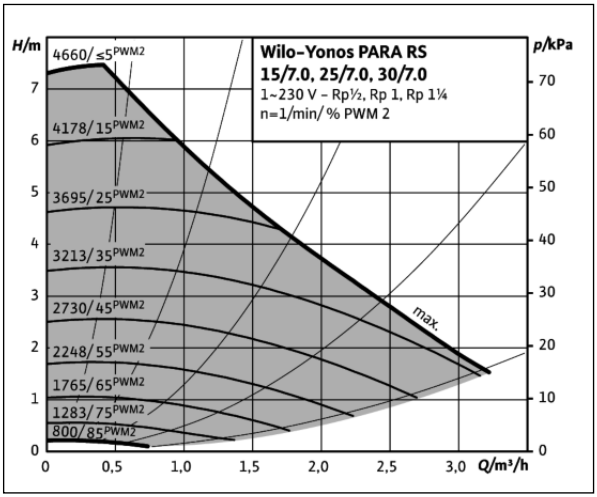


Temperatura di ritorno





Curve caratteristiche pompa
Wilo Yonos PARA RS 15/7



6.3 Gruppo solare “Regusol L-130 DN20”

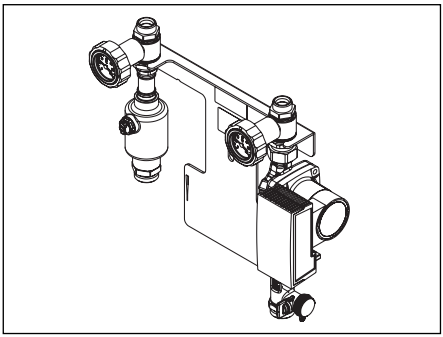


Fig. 35 “Regusol L 130 DN20”

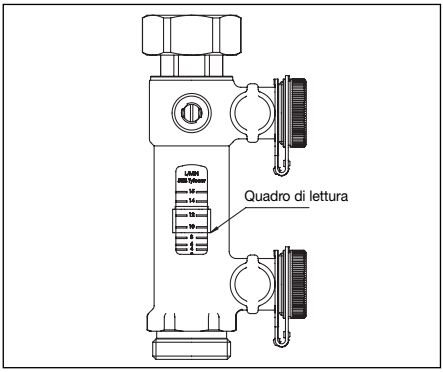


Fig. 36 Valvola di bilanciamento

Dati tecnici

Temperatura massima d‘esercizio	120°C
Pressione massima d‘esercizio	6 bar PN10
Valvola di sicurezza	6 bar
Portata	2-15 l/min
Pressione apertura valvola di ritegno	20 mbar

Attacchi
G¾ per raccordo di serraggio
G¾ a tenuta piana, per serbatoio

Dimensioni:

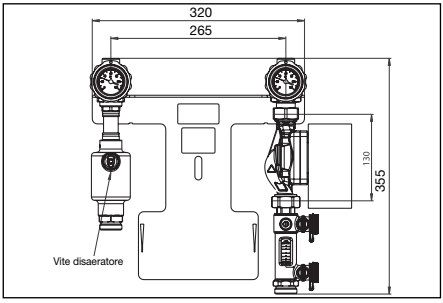


Fig. 37 Dimensioni “Regusol L 130 DN20”

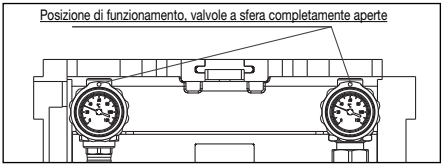


Fig. 38 Riempimento e risciacquo dell’impianto, posizione di funzionamento

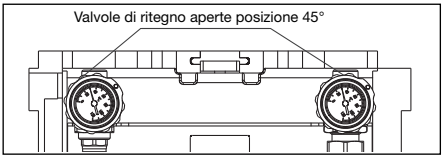


Fig. 39 Valvole di ritegno aperte

⚠ PERICOLO

Pericolo di morte!
Durante il funzionamento le valvole a sfera del gruppo solare **devono** essere aperte.

Il collettore deve essere assicurato da sovrappressione non consentita tramite una valvola di sicurezza e un vaso di espansione a membrana (MAG). (Vedi anche istruzioni d’uso, “Montaggio, messa in funzione e manutenzione di Impianti solari termici”, all’indirizzo: www.oventrop.com)

Messa in funzione Gruppo solare

⚠ AVVISO

- Nel caso di temperature molte elevate del collettore, non riempire mai l’impianto con fluido solare! In presenza di irraggiamento solare, proteggere il collettore in via preventiva e farlo raffreddare!
- Con temperature elevate nel circuito solare (collettori > 60 °C) esiste il pericolo di ustioni! Con irraggiamento solare elevato può formarsi vapore nei collettori.
- Verificare che la pressione in entrata del vaso di espansione sia corretta.

Risciacquo circuito solare
- Risciacquare il circuito solare con fluido termovettore
- Non azionare la pompa di riempimento a secco
- Usare un filtro (nella maggior parte dei gruppi di riempimento mobili è già integrato)

Gruppo di riempimento mobile
Il gruppo di riempimento (Oventrop –codice 1364240) permette il risciacquo rapido e accurato ed il riempimento dei sistemi solari termici e garantisce inoltre uno sfiato affidabile.
L’unità compatta, composta da pompa, contenitore per fluido solare, filtro e supporto per flessibili, è montata su un carrello robusto per un facile trasporto.

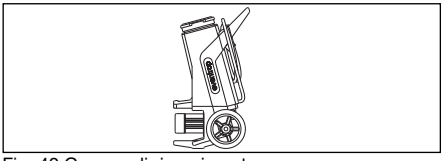


Fig. 40 Gruppo di riempimento

Verifica della tenuta
- Eseguire la prova visiva di tutti i punti di collegamento
- Pressione di prova 4-5 bar
- Possibili oscillazioni di pressione dovute a irraggiamento solare variabile

Riempimento e sfiato del circuito solare
- Valvole a sfera e valvole di ritegno in posizione di funzionamento (come in Fig. 38).
- Aprire entrambe le valvole a sfera di riempimento e di svuotamento sulla valvola di bilanciamento.
- La valvola a sfera per la regolazione, posizionata sul misuratore di flusso, deve essere chiusa completamente (intaglio orizzontale)
- Inserire la pompa di riempimento
- Azionare la pompa di riempimento fino a che non ci siano più bolle d'aria nel contenitore del fluido. Secondo il tipo di impianto l'operazione può durare 30-90 min.
- Al raggiungimento della pressione d'impianto desiderata chiudere le valvole a sfera di riempimento e svuotamento, sulla valvola di bilanciamento.

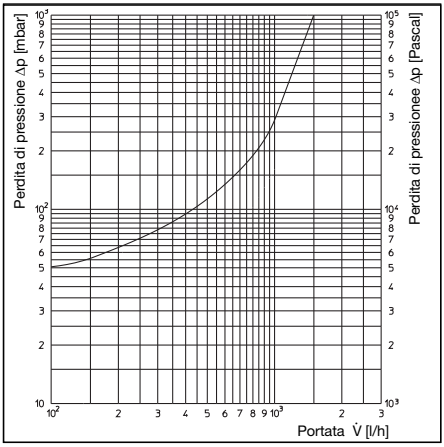
Regolazione della pressione d'impianto
- Presupposto: pressione corretta in entrata del vaso di espansione (MAG) all'installazione. A impianto pieno la pressione in entrata può essere determinata soltanto se il MAG è chiuso e senza pressione,
- In seguito alla separazione dell'aria, entro alcuni giorni dall'operazione di riempimento, la pressione dell'impianto può nuovamente calare.

Consiglio
Durante l'operazione di riempimento regolare la pressione dell'impianto aumentandola di circa 0,1 - 0,2 bar, rispetto ai valori riportato in tabella.

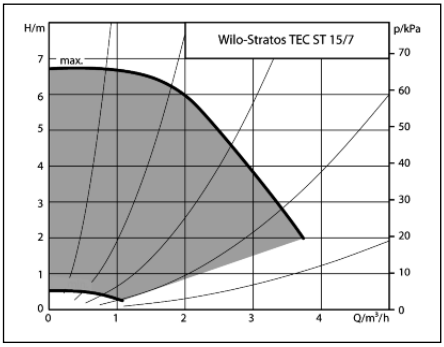
Altezza impianto [m]	Pressione MAG in entrata [mbar]	Pressione impianto* [bar]
5	0,9-1,0	1,2-1,3
8	1,2	1,5
10	1,7	2,0
15	2,3	2,6
20	2,8	3,1
*con temperatura ambiente del fluido termovettore (c.a 20 °C)		

Regolazione della portata
La portata è regolata in automatico.

Diagramma di flusso:



Caratteristiche pompa:



6.4 Centralina di sistema "Regtronic RS-B"
Tutti i dati e le informazioni importanti riguardanti la centralina sono riportati nell'allegata descrizione 138 3565 81 "Regtronic RM-B/RS-B".

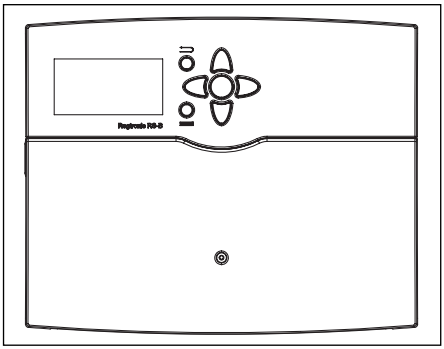


Fig. 41 Centralina di sistema "Regtronic RS-B"

6.5 Serbatoio

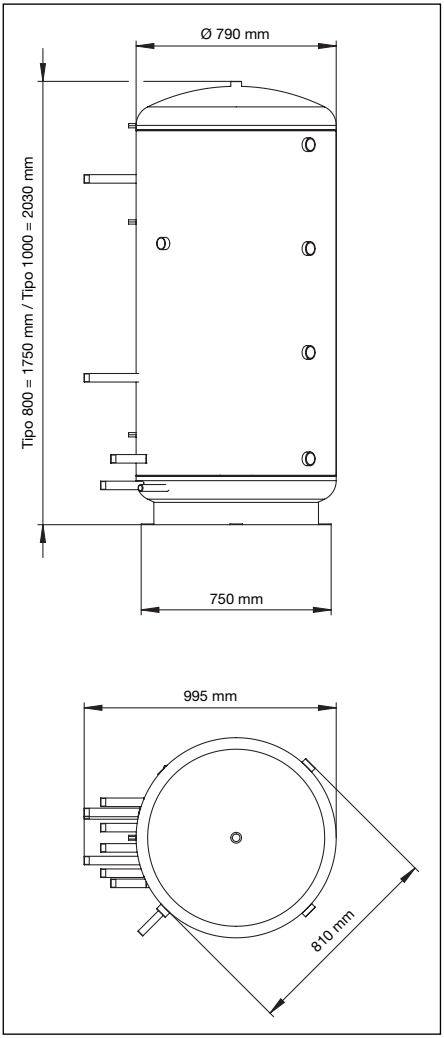


Fig. 42 Dimensioni serbatoio senza isolamento

Dati tecnici serbatoio

Volume utile:	Tipo 800 / Tipo 1000
– Per gruppo ACS:	200 l / 250 l
Serpentina riscaldamento solare:	3,1 m² / 3,4 m²
Pressione massima di esercizio:	3 bar
Temperatura massima di esercizio:	95 °C
Geometria bocchettone gruppo:	G1 FM
Geometria bocchettone carico:	G 1 ½ FF
Peso:	186 kg / 198,5 kg

Due dispositivi di stratificazione integrati:

1. Ritorno circuiti di riscaldamento
2. Ritorno gruppo ACS

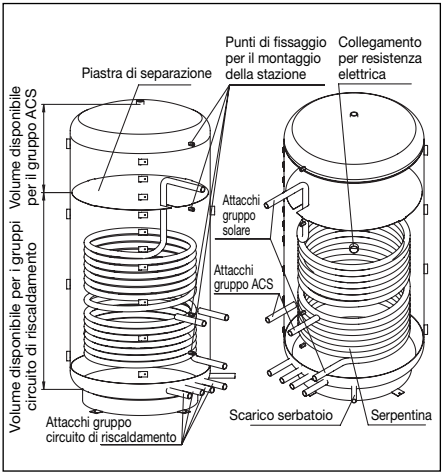


Fig. 43 Vista in sezione

Isolamento serbatoio

Materiale:	Fibre in poliestere bianco grezzo
Spessore materiale:	140 mm
Classe di infiammabilità:	DIN 4102 B1
Conduttività termica:	λ= 0,04 [W/(m*K)]
Punto di fusione:	
· Parte fibra riempimento:	ca. 250 °C
· Parte fibra fusione:	ca. 110 °C
· Punto di rammollimento:	(a partire) da 90 °C

Isolamento rivestimento

Materiale:	film flessibile - PVC
Spessore materiale:	0,4 mm
Classe di infiammabilità:	DIN 4102 B2

Isolamento calotta

Materiale:	PS
Classe di infiammabilità:	DIN 4102 B2

7 Accessori

7.1 Espansione circuito di riscaldamento “Regucor WHS”

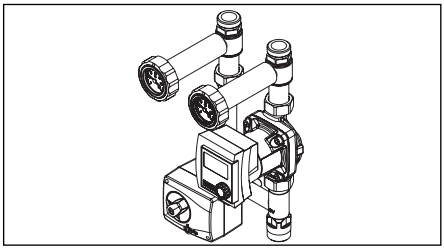


Fig. 44 Gruppo circuito di riscaldamento “Regumat M3 130 DN 20”, Pompa Wilo Stratos Pico 25/1-6, con miscelatore a tre vie e servomotore (138 35 70).

7.2 Set ricircolo acqua sanitaria “Regumaq XH”

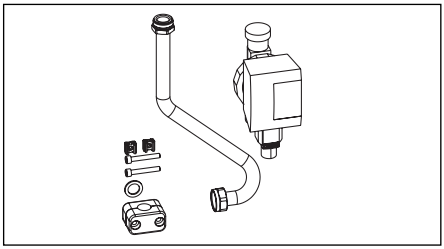


Fig.45: Set di collegamento con pompa di ricircolo Wilo Star Z Nova C e timer per l’ampliamento del gruppo per la produzione di acqua sanitaria “Regumaq XH” con un sistema di ricircolo acqua sanitaria (138 10 47 **con** pompa di circolazione, 1381049 **senza** pompa di circolazione).

7.3 Set di collegamento alla tubazione

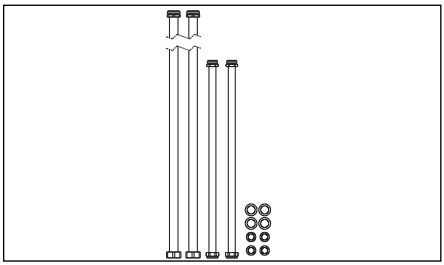


Fig. 46 Per il gruppo ACS e per il primo circuito di riscaldamento (1383580).

7.4 Ampliamento - set di collegamento alla tubazione

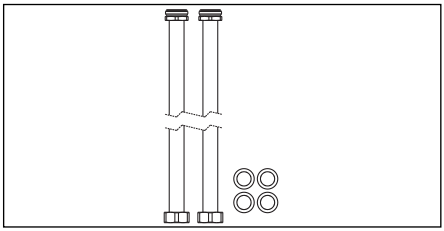


Fig. 47 Per il secondo circuito di riscaldamento (1383581)

7.5 Gruppo di sicurezza solare

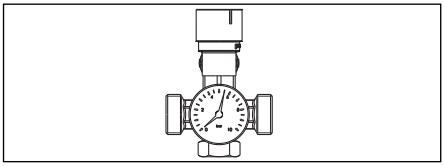


Fig. 48 Per il montaggio su colonna con valvola di sicurezza 6 bar per raccordo di serraggio “Regusol” (136 42 48).

7.6 Regolatore elettrico a contatto

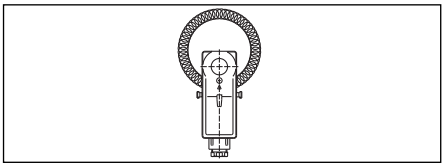


Fig. 49 Regolatore elettrico a contatto con impostazione della temperatura nascosta, campo di regolazione 20-90°C (114 30 00).

7.7 “Tri-M TR” valvola di miscelazione a tre vie PN 16

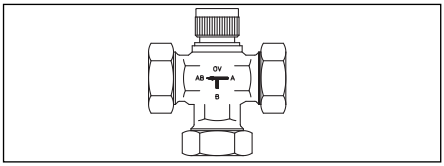


Fig. 50 Valvola a tre vie per il carico di due zone (1131706).

7.8 “Tri-D TR” valvola deviatrice a tre vie PN 16

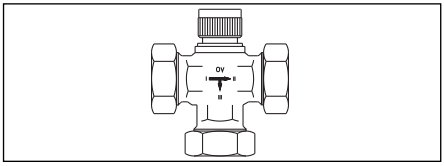


Fig. 51 Valvola a tre vie per il carico di due zone (1130206).

7.9 Servomotore

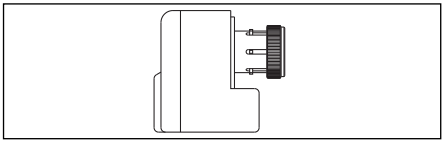


Fig. 52 Servomotore per il controllo della valvola a tre vie (1012710).

7.10 Cappucci isolanti

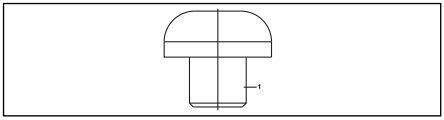


Fig. 53 Cappuccio isolante per gli attacchi G 1½ (1389001).

7.11 Prolunga per bocchettoni di carimamento

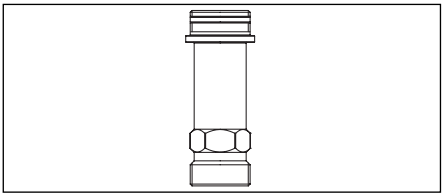


Fig. 54 Prolunga per G 1 ½ Anschlussmuffen (1383593).

7.12 Prolunga per barra di riscaldamento elettrica

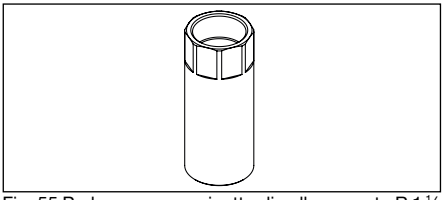


Fig. 55 Prolunga per manicotto di collegamento R 1 ½ (1383592).

7.13 Barra di riscaldamento elettrica

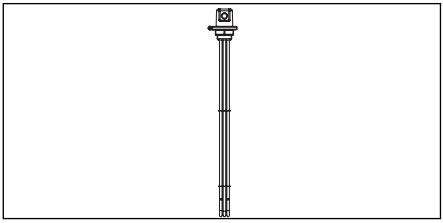


Fig. 56 9kW Barra di riscaldamento elettrica per il riscaldamento elettronico dell'acqua del serbatoio (1383590)

7.14 Combinazione regolatore e limitatore per barra di riscaldamento elettrica

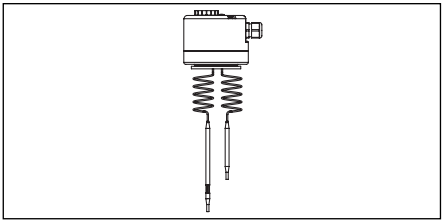


Fig. 57 Combinazione regolatore e limitatore per regolazione e limitazione autonoma della barra di riscaldamento elettrica (1383591).

8 Manutenzione e assistenza

8.1 Manutenzione

Per consentire un corretto funzionamento dell'impianto, si consiglia di far eseguire la manutenzione almeno una volta all'anno da una ditta termoidraulica specializzata.

Si dovranno eseguire i seguenti interventi:
- Verifica della tenuta di tutto il valvolame e dei raccordi.

9 Smontaggio e smaltimento

⚠ AVVISO

Pericolo di lesioni in caso di insufficienti competenze!
Un uso improprio può comportare danni rilevanti a persone e cose.
Per questo:
- Lo smontaggio può essere eseguito soltanto da personale competente
- I lavori sugli impianti elettrici possono essere eseguiti soltanto da personale specializzato.

9.1 Smontaggio

⚠ AVVISO

Pericolo di lesioni in caso di smontaggio improprio!
Energie residue accumulate, componenti spigolosi, punte e angoli sull'impianto e nell'impianto possono provocare lesioni.
Per questo:
- Prima dell'inizio dei lavori prevedere uno spazio sufficiente
- In presenza di componenti aperti, a spigoli vivi, agire con prudenza

Mantenere ordine e pulizia sul posto di lavoro! Componenti e utensili sparsi sono fonte di infortuni.
Eseguire un accurato smontaggio dei componenti.

Prima di iniziare lo smontaggio:
- Disconnettere l'impianto dalla rete elettrica e assicurarsi che non possa essere reinserito.
- Disconnettere fisicamente l'alimentazione dall'impianto e scaricare energie residue accumulate.
- Rimuovere materiali di esercizio e ausiliari e altri materiali di lavorazione e provvedere ad uno smaltimento compatibile con l'ambiente.

9.2 Smaltimento

Se non è stato preso alcun accordo per il ritiro o per lo smaltimento, destinare i componenti smontati al riciclo:
- Metalli rottamati
- Destinare elementi in materiale plastico al riciclo
- Smaltire i componenti restanti, in funzione delle caratteristiche dei materiali

ATTENZIONE

Danni ambientali in caso di smaltimento scorretto!
Rottami di prodotti elettrici, componenti elettronici, lubrificanti e altri materiali ausiliari rientrano nello smaltimento di rifiuti speciali e possono essere smaltiti soltanto da ditte specializzate autorizzate!

Le autorità comunali locali o ditte specializzate nello smaltimento rifiuti forniscono le informazioni per uno smaltimento compatibile con l'ambiente.

10 Garanzia

Si applicano le condizioni di garanzia della ditta Oventrop, in vigore al momento della fornitura.