

1



11

Low-Flow solution
 Limiteur de débit
 Limitador de caudal

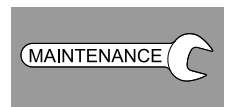
2 - 9



12 - 13

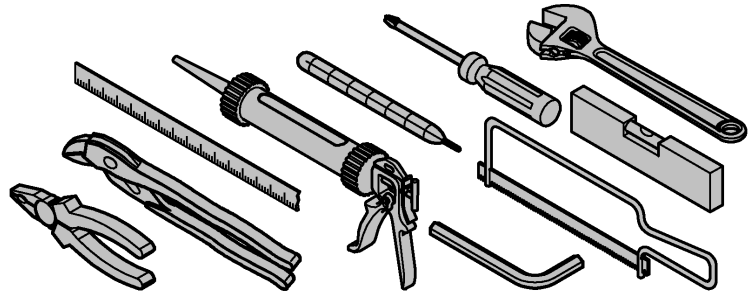
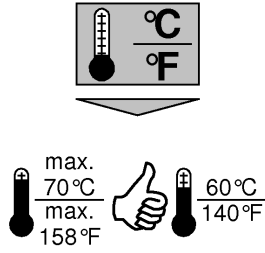
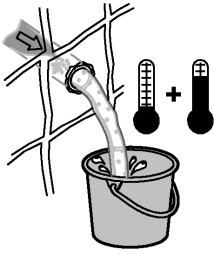
English
 Français
 Español

9 - 10



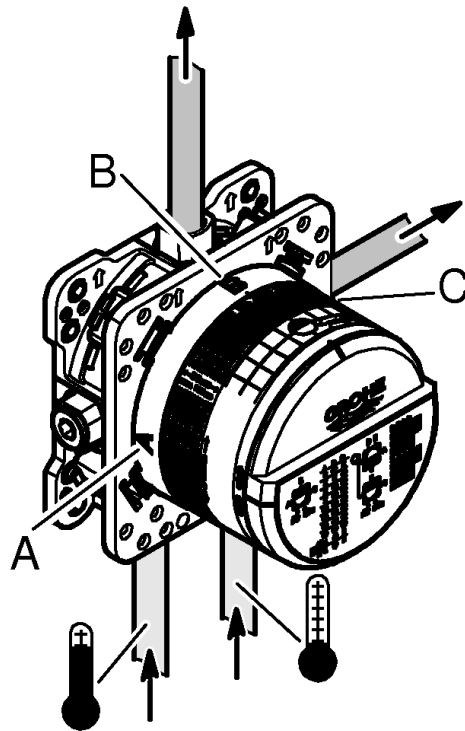
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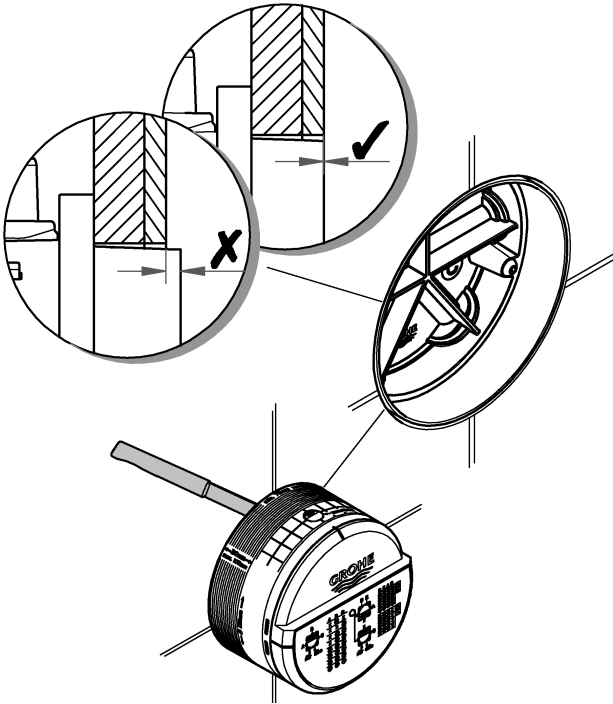
| | psi | | | | | | gpm |
|-------|------|-----|------|-----|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| B | 3,7 | 5,2 | 6,3 | 7,3 | 8,2 | 9 | |
| C | 4 | 5,6 | 6,9 | 7,9 | 8,9 | 9,7 | |
| B + C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |

| | bar | | | | | | l/min |
|-------|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| B | 13,9 | 19,6 | 24 | 27,7 | 31 | 33,9 | |
| C | 15 | 21,2 | 26 | 30 | 33,6 | 36,8 | |
| B + C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |

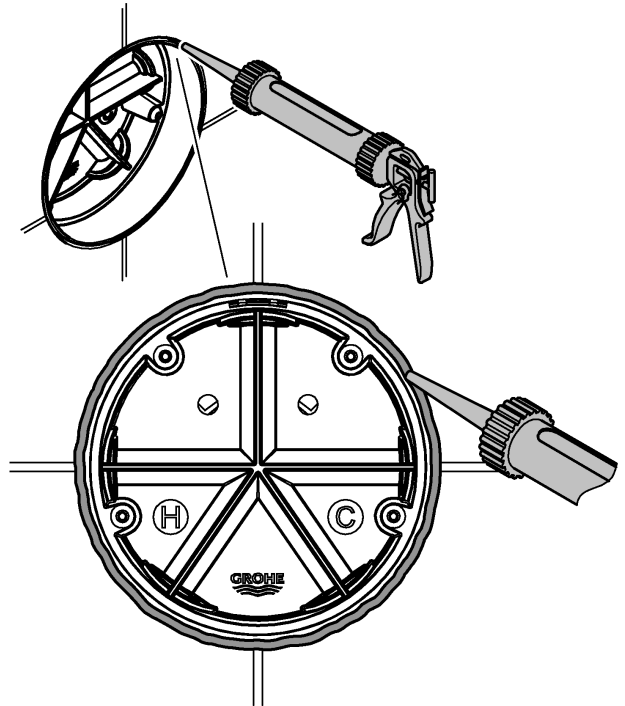




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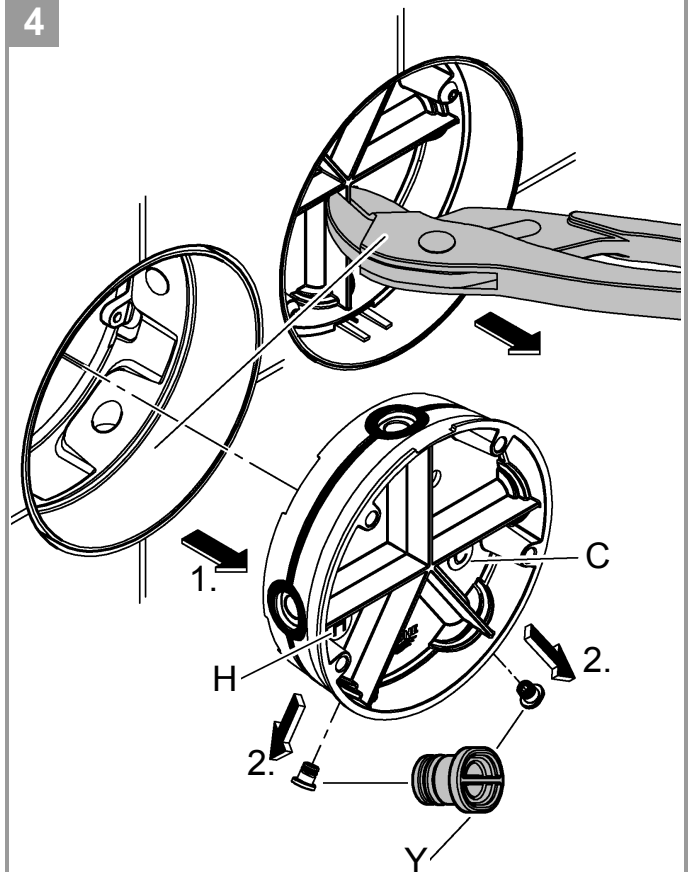
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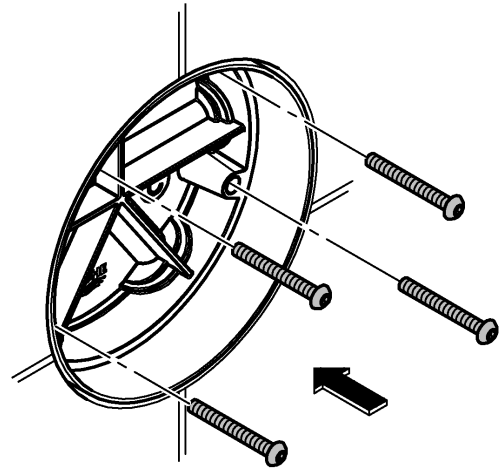




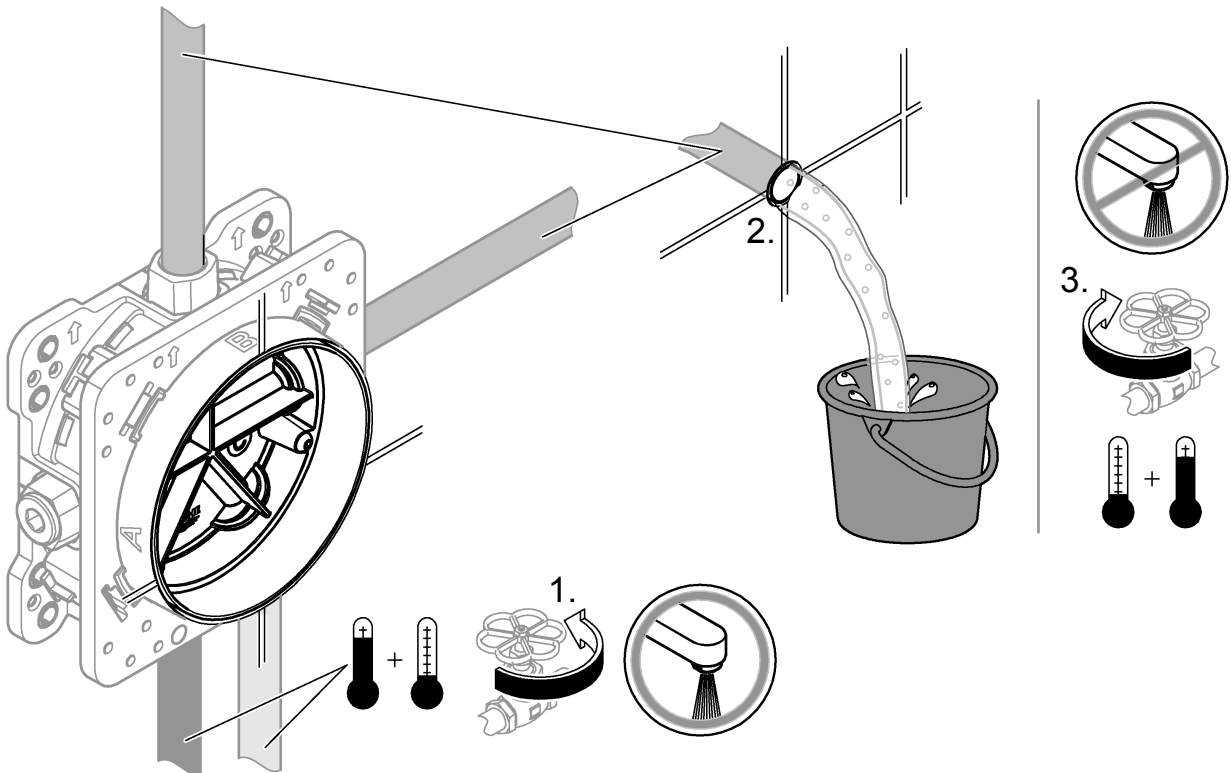
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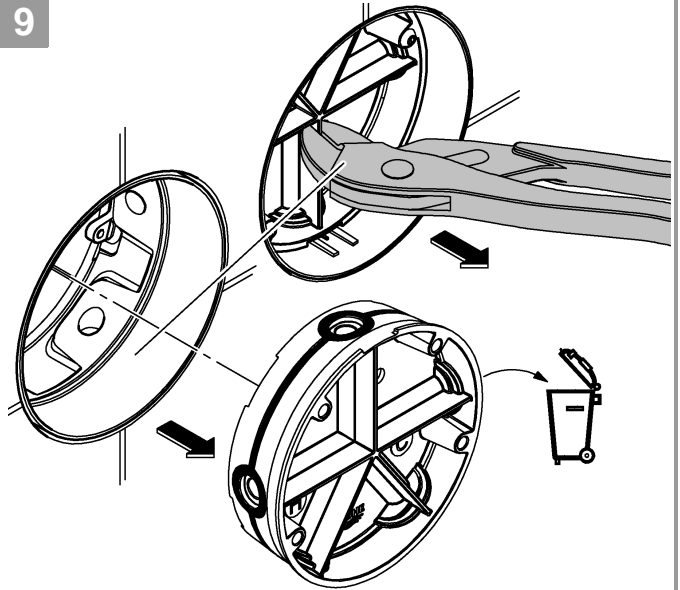




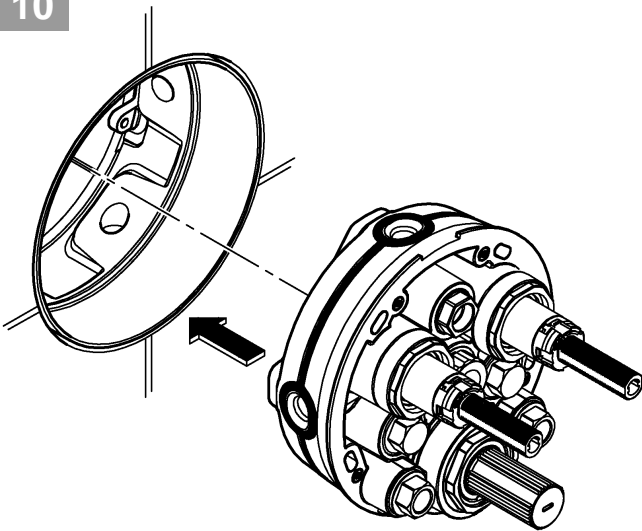
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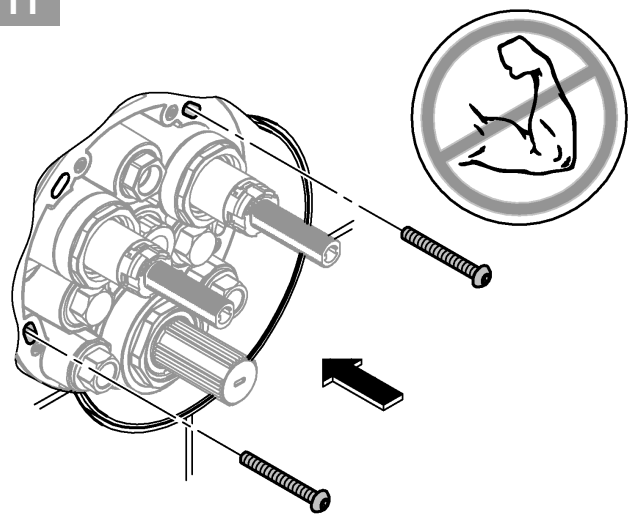
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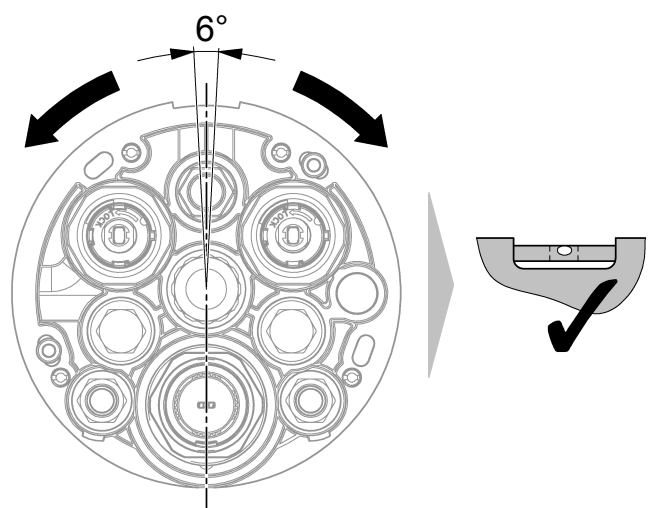
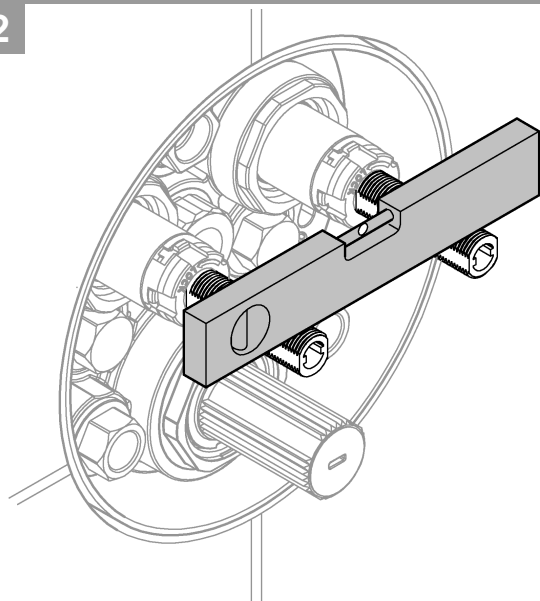
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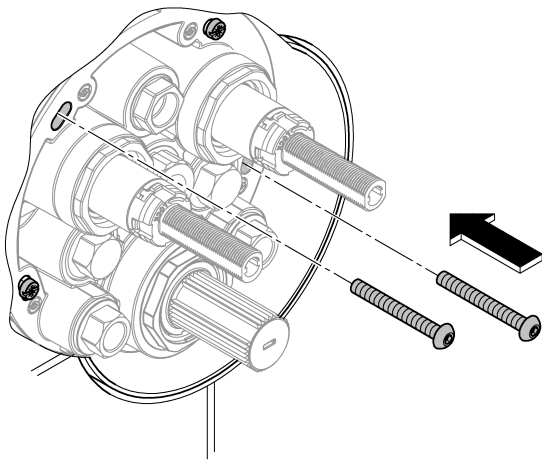


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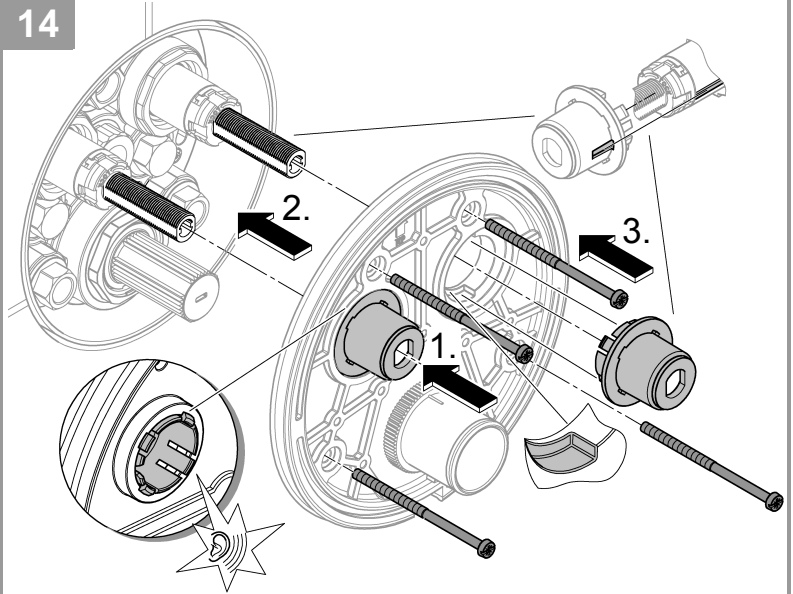




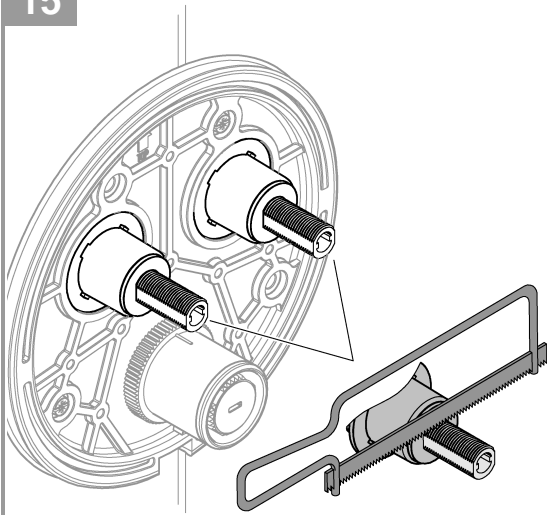
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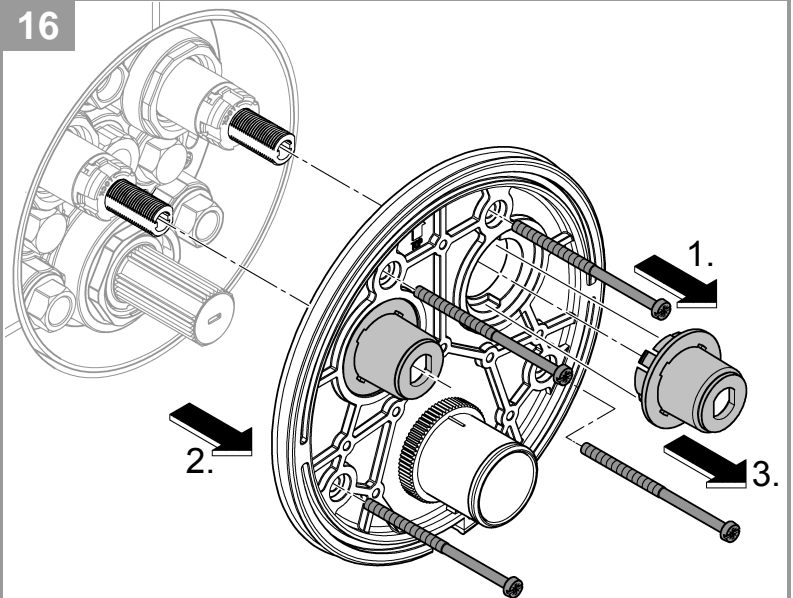
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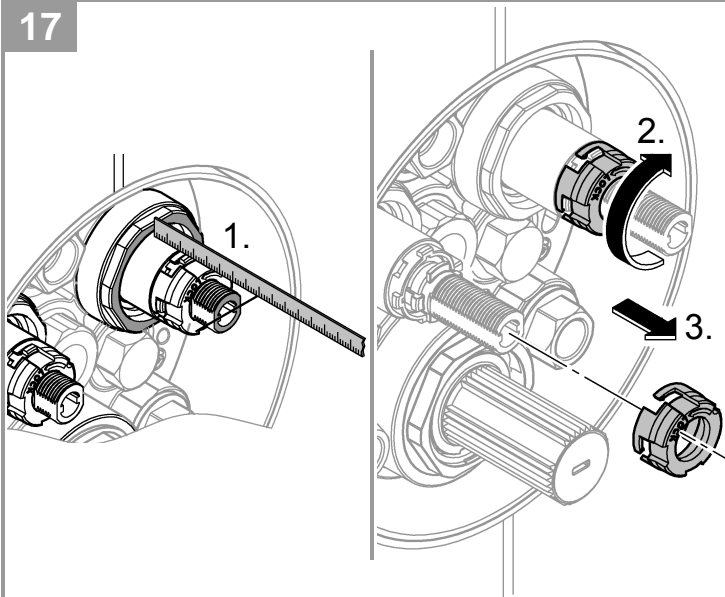
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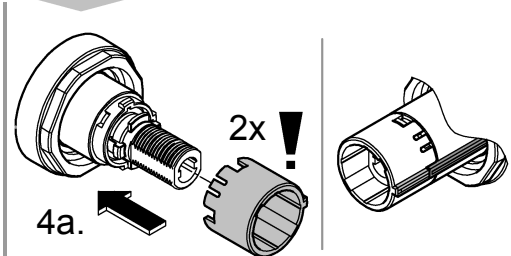
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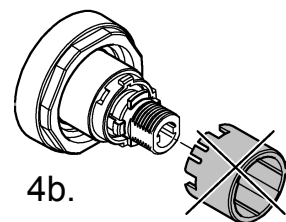
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$>1\frac{3}{4}'' / 44\text{mm}$

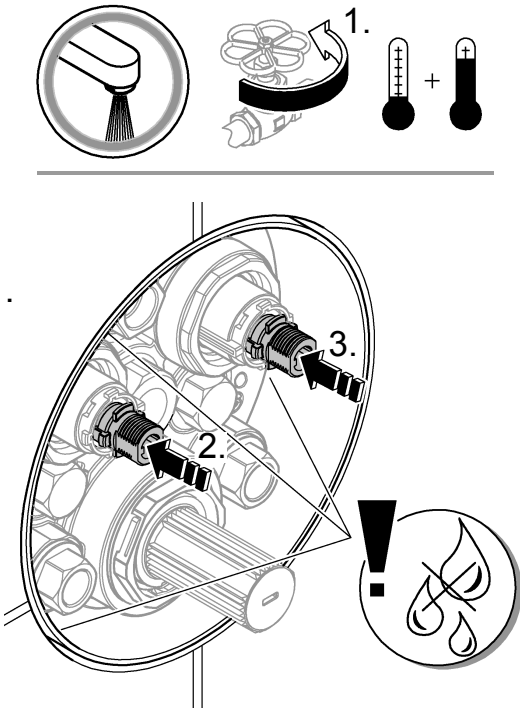


$\leq 1\frac{3}{4}'' / 44\text{mm}$

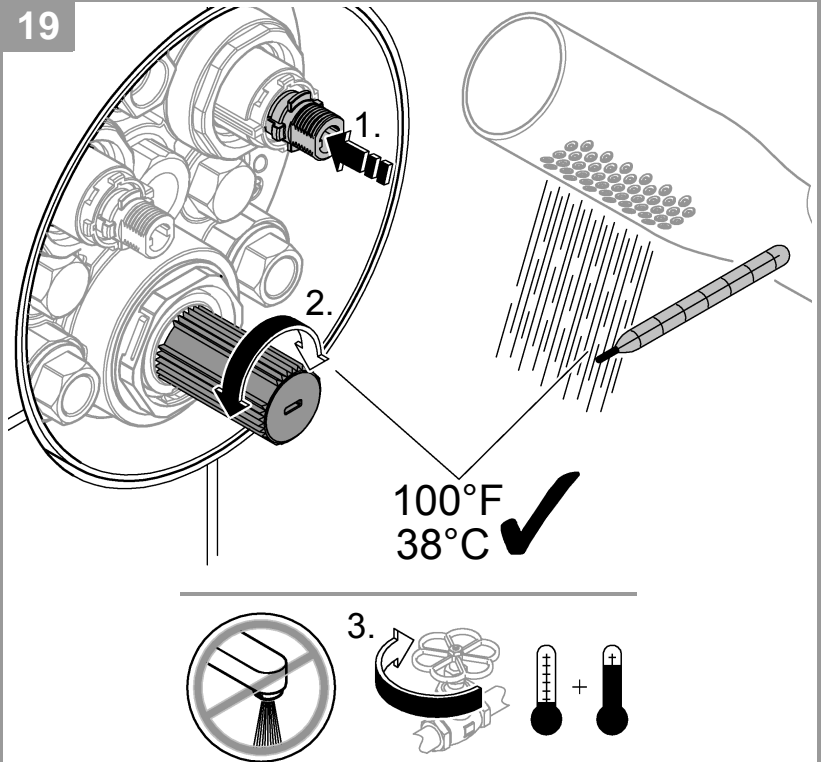




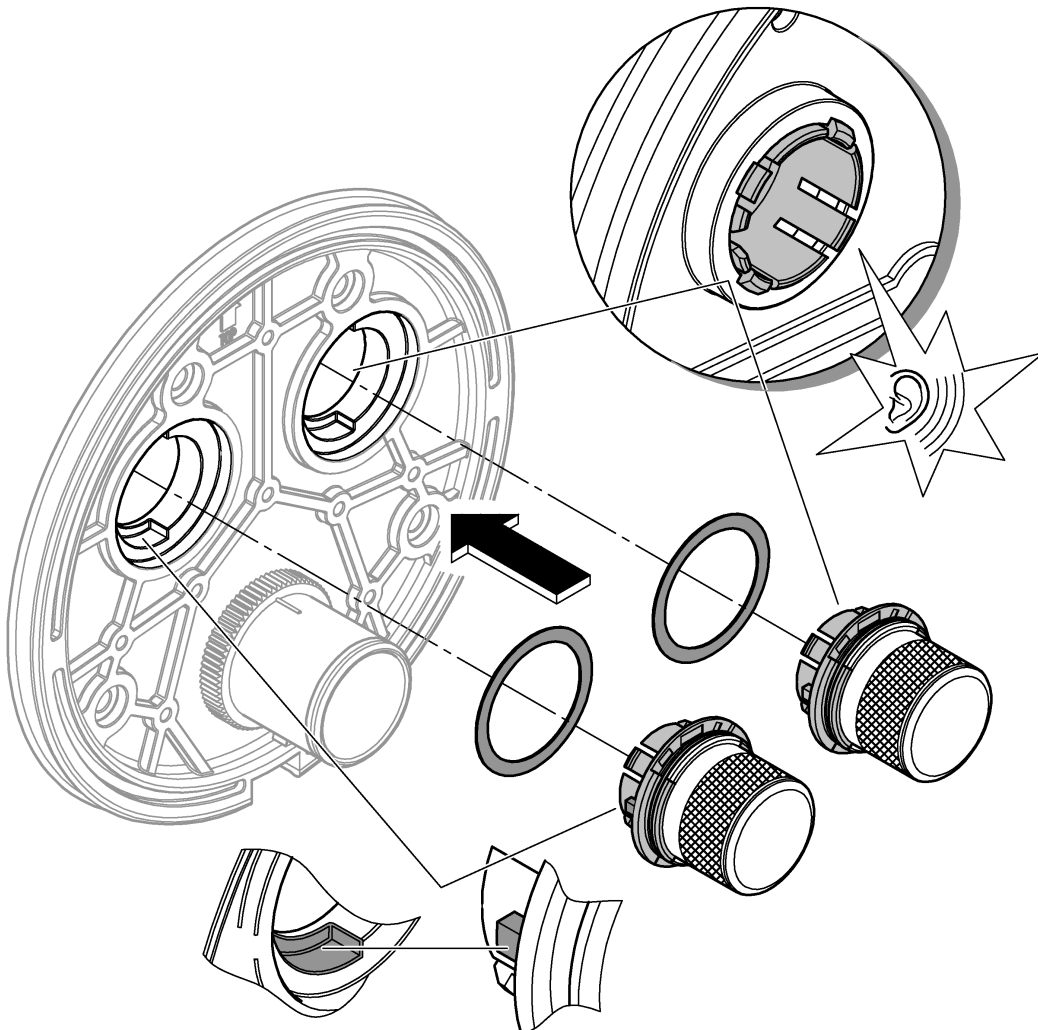
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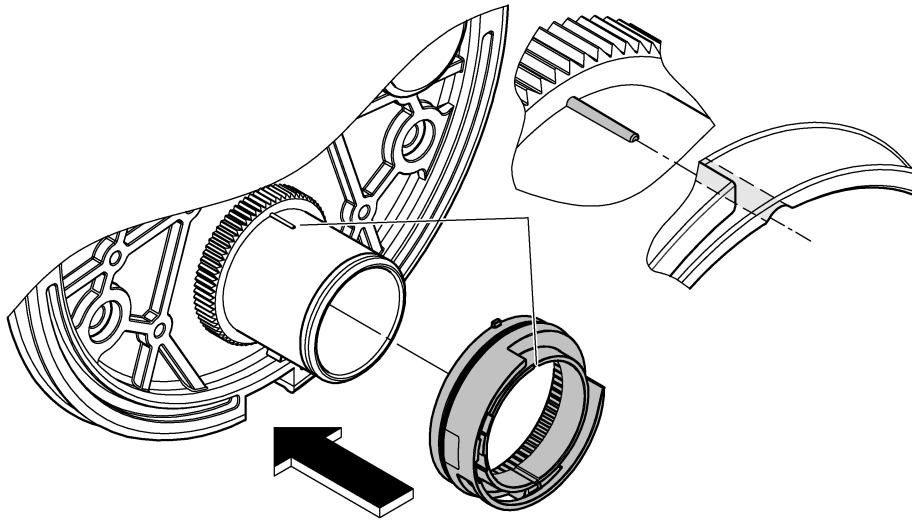


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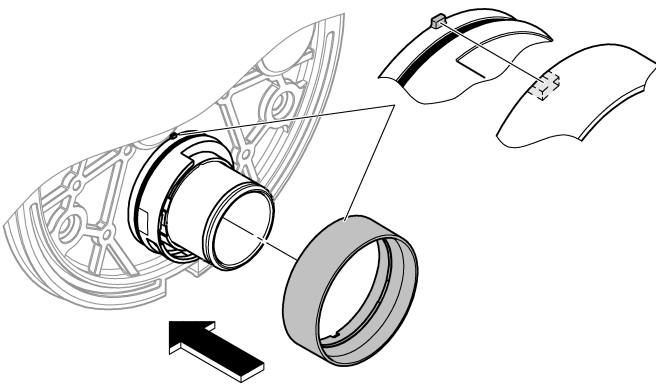




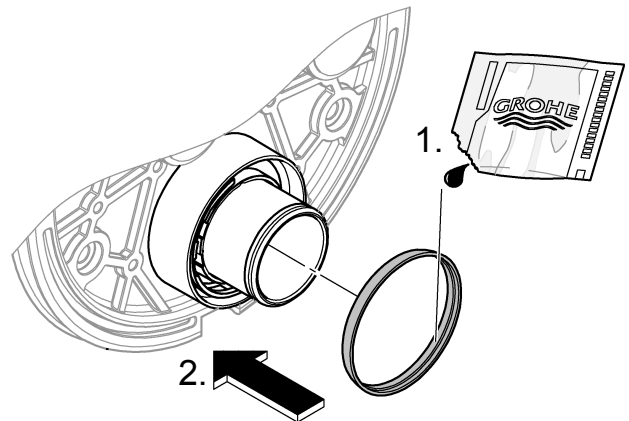
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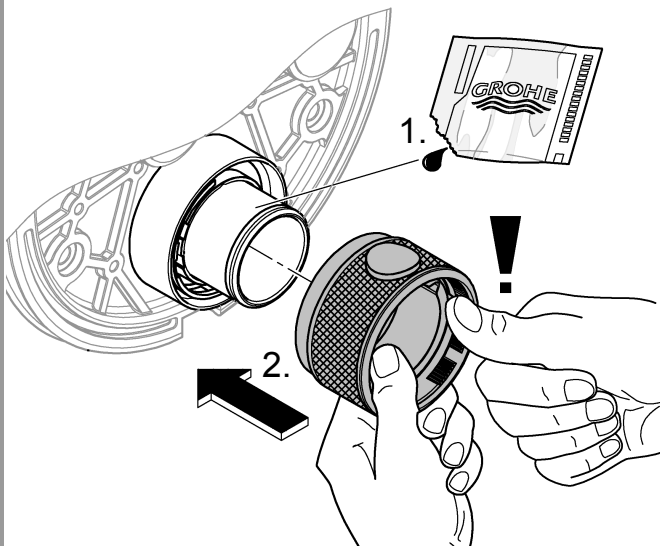
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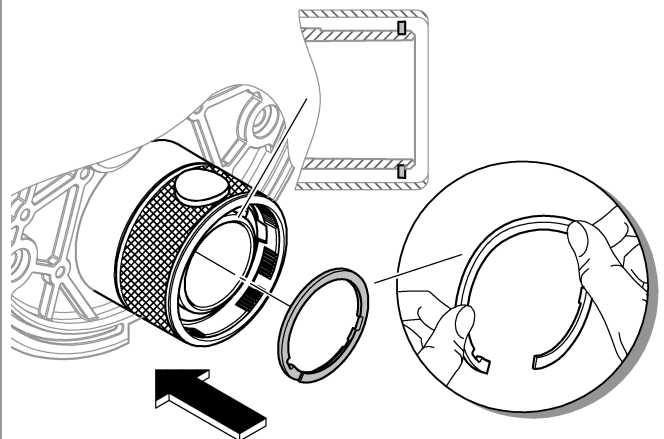
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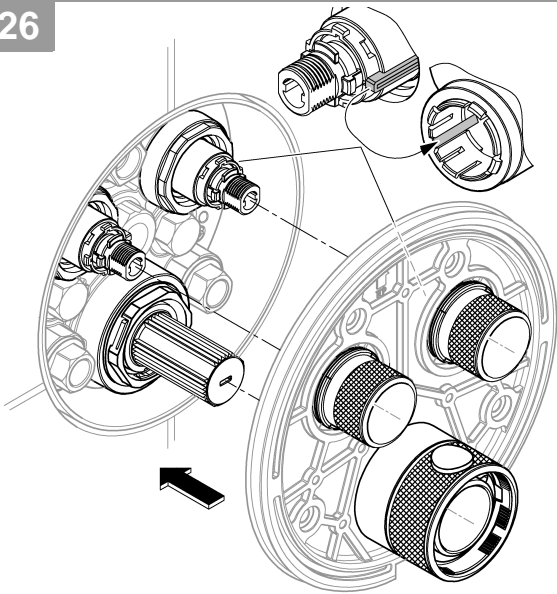


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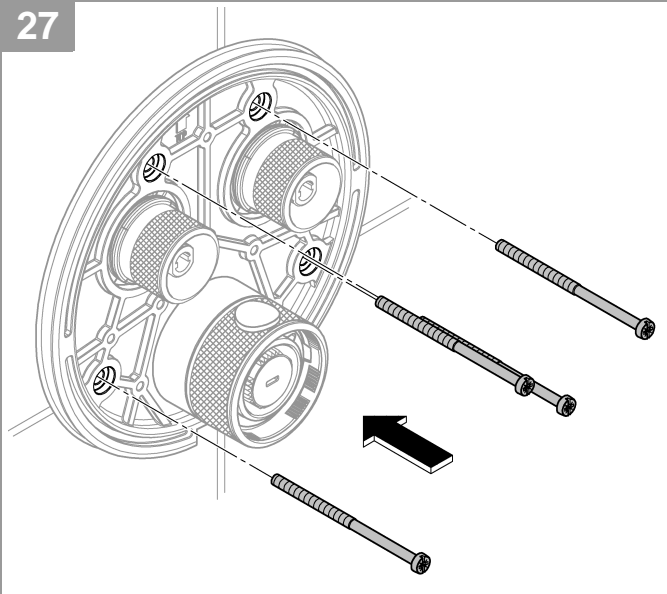




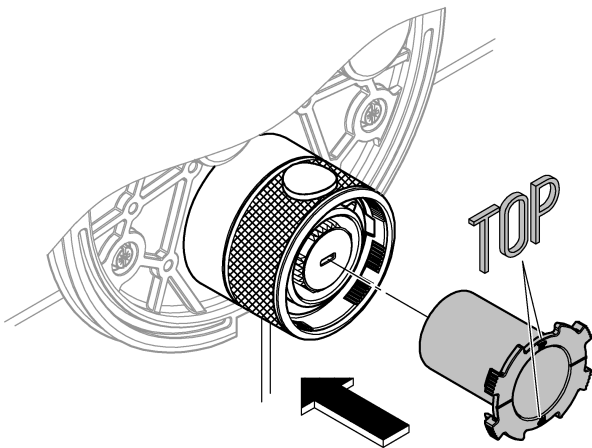
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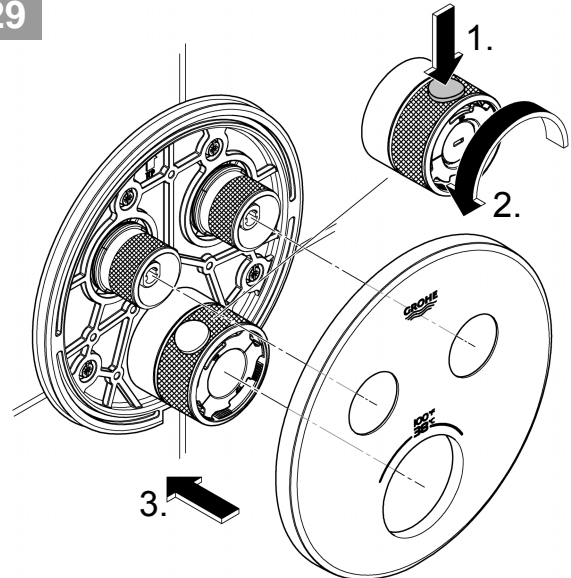
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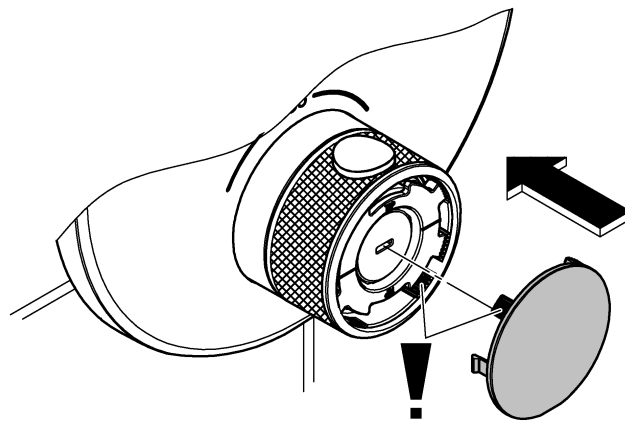
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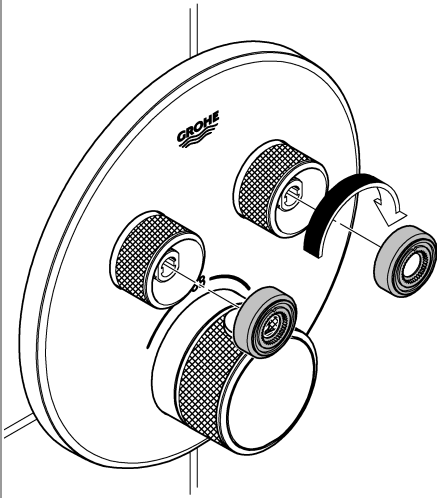


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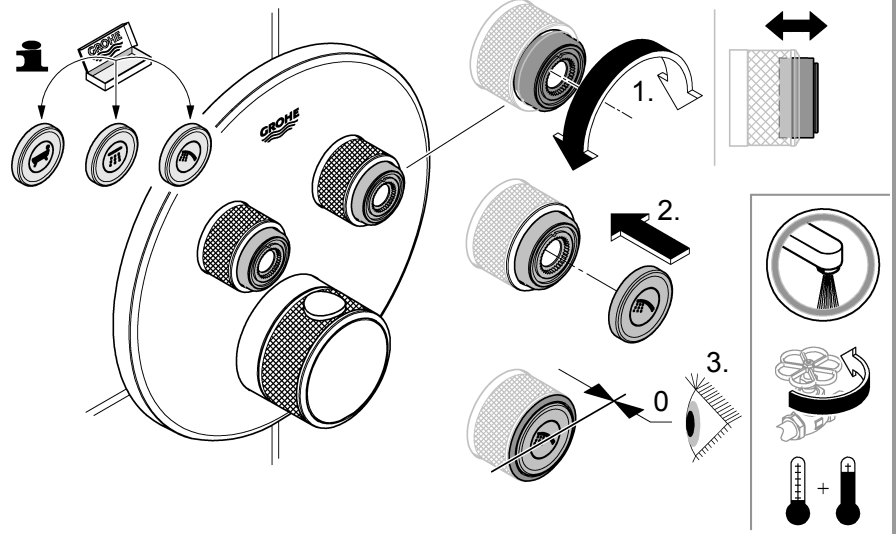




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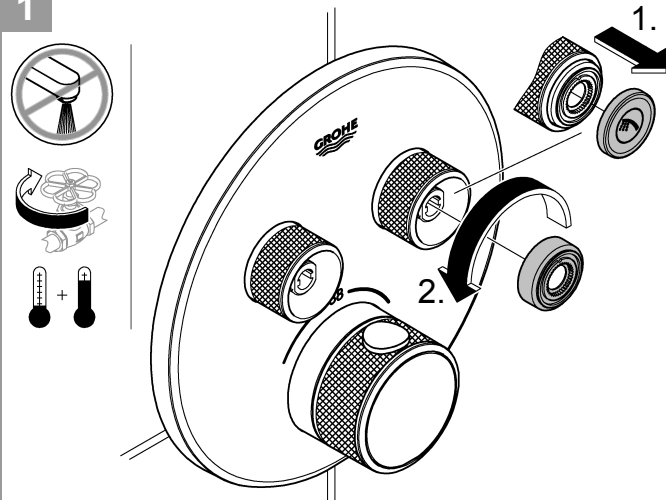


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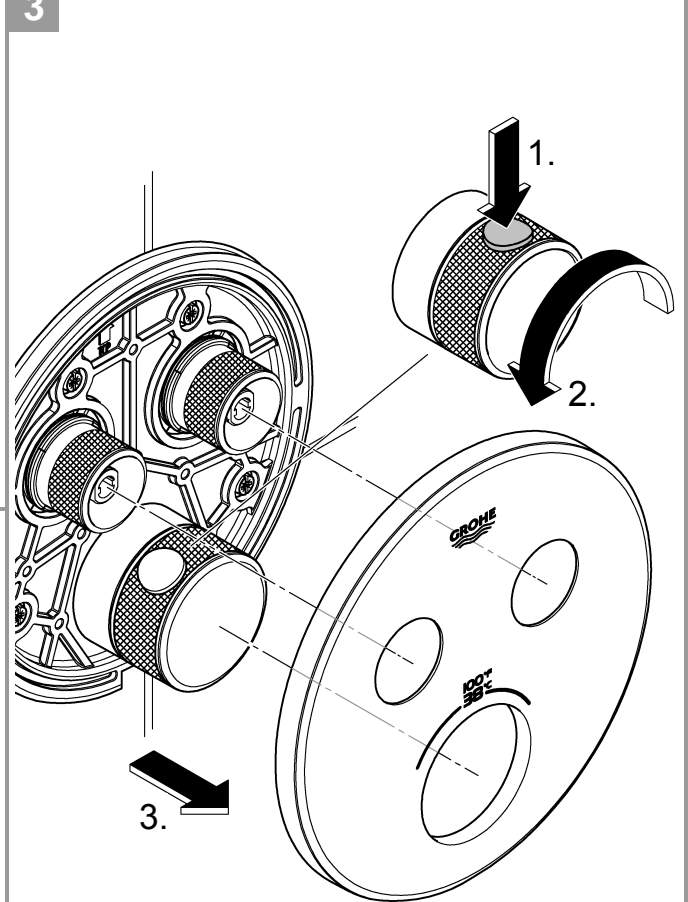


MAINTENANCE

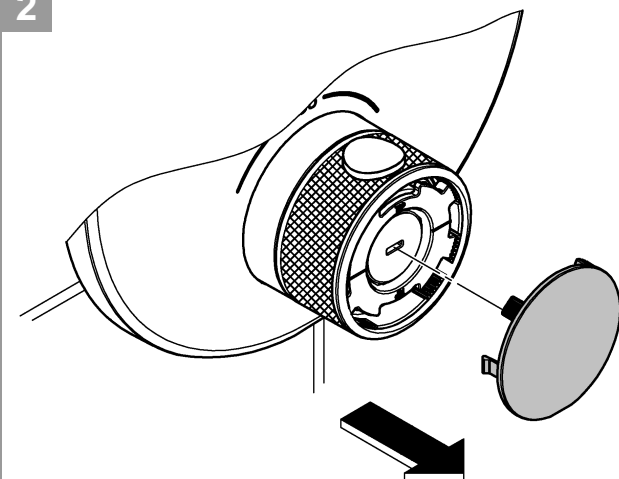
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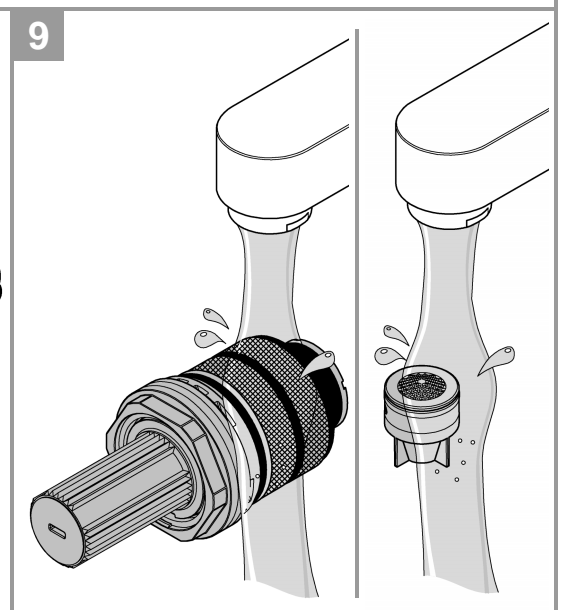
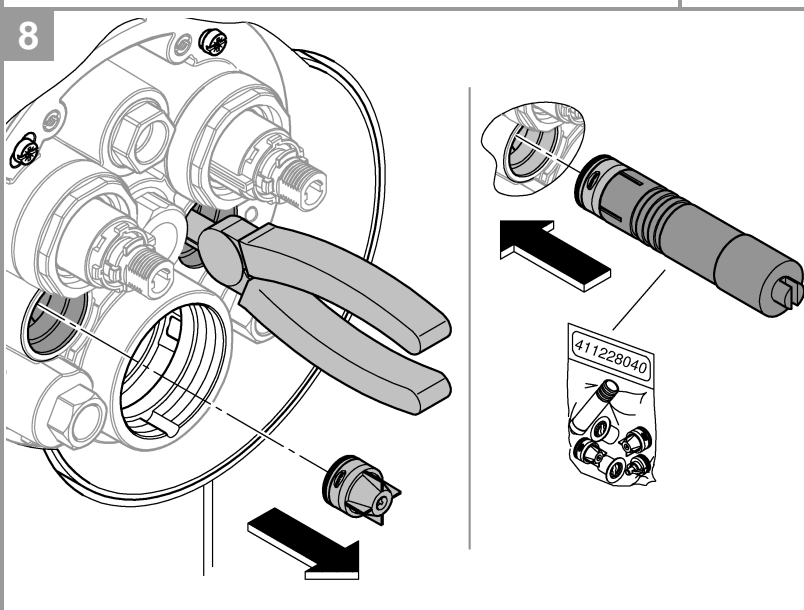
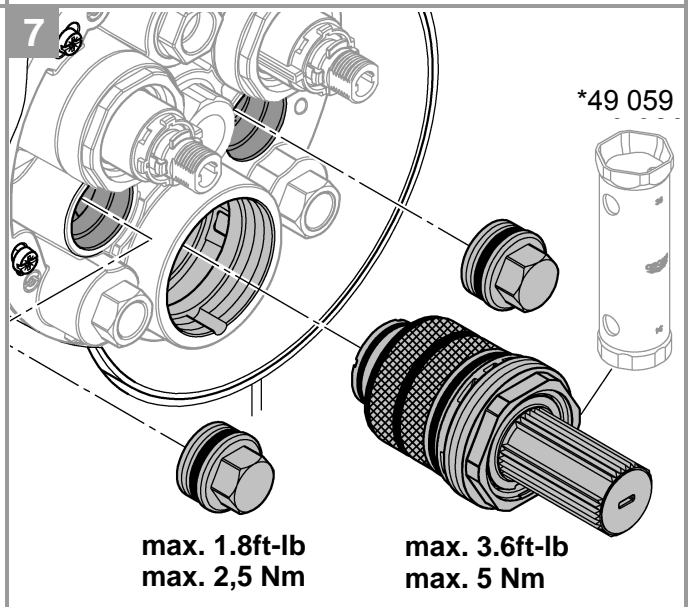
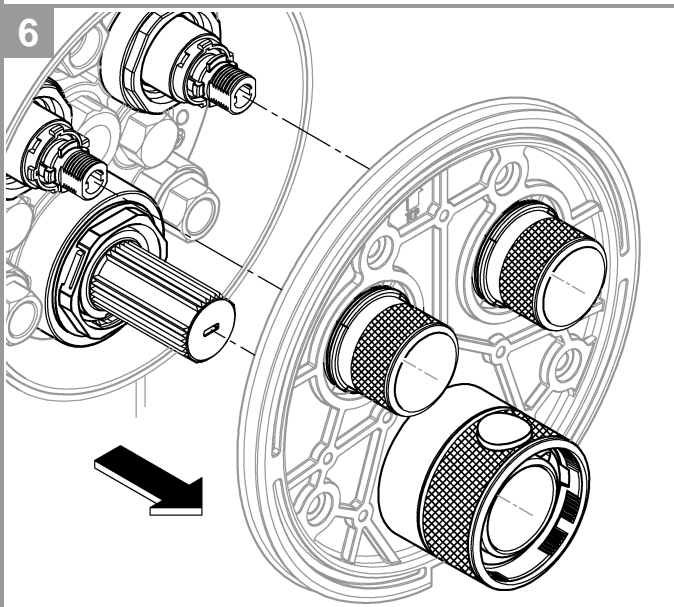
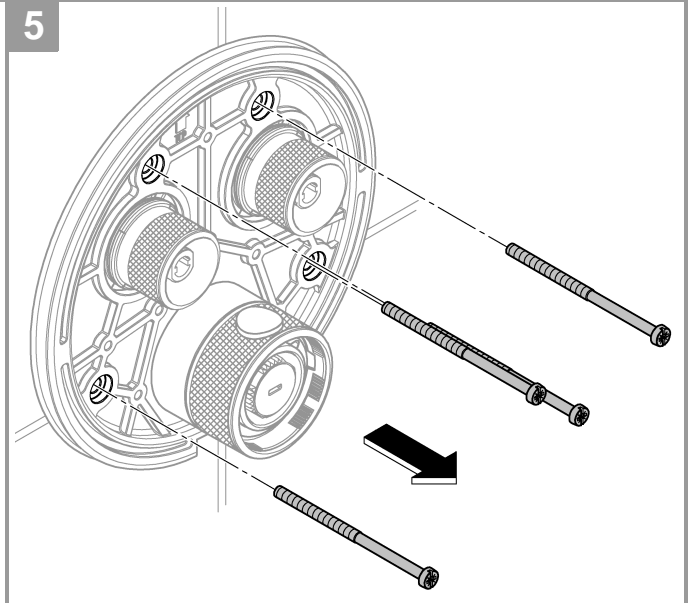
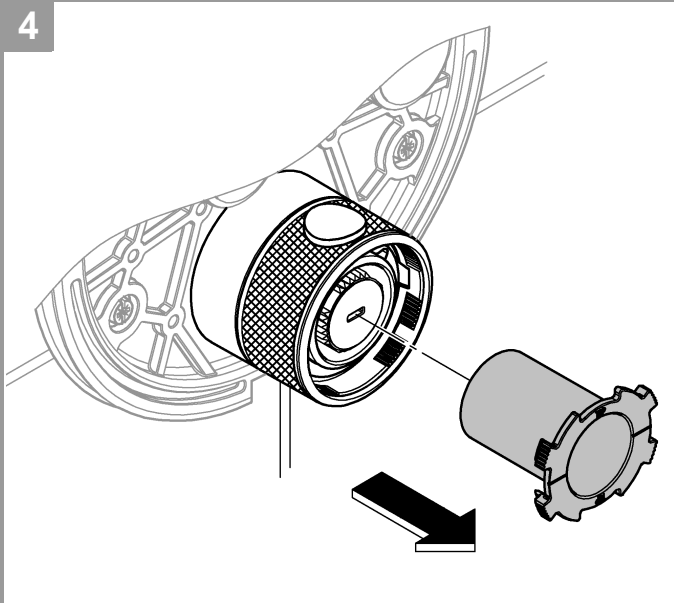


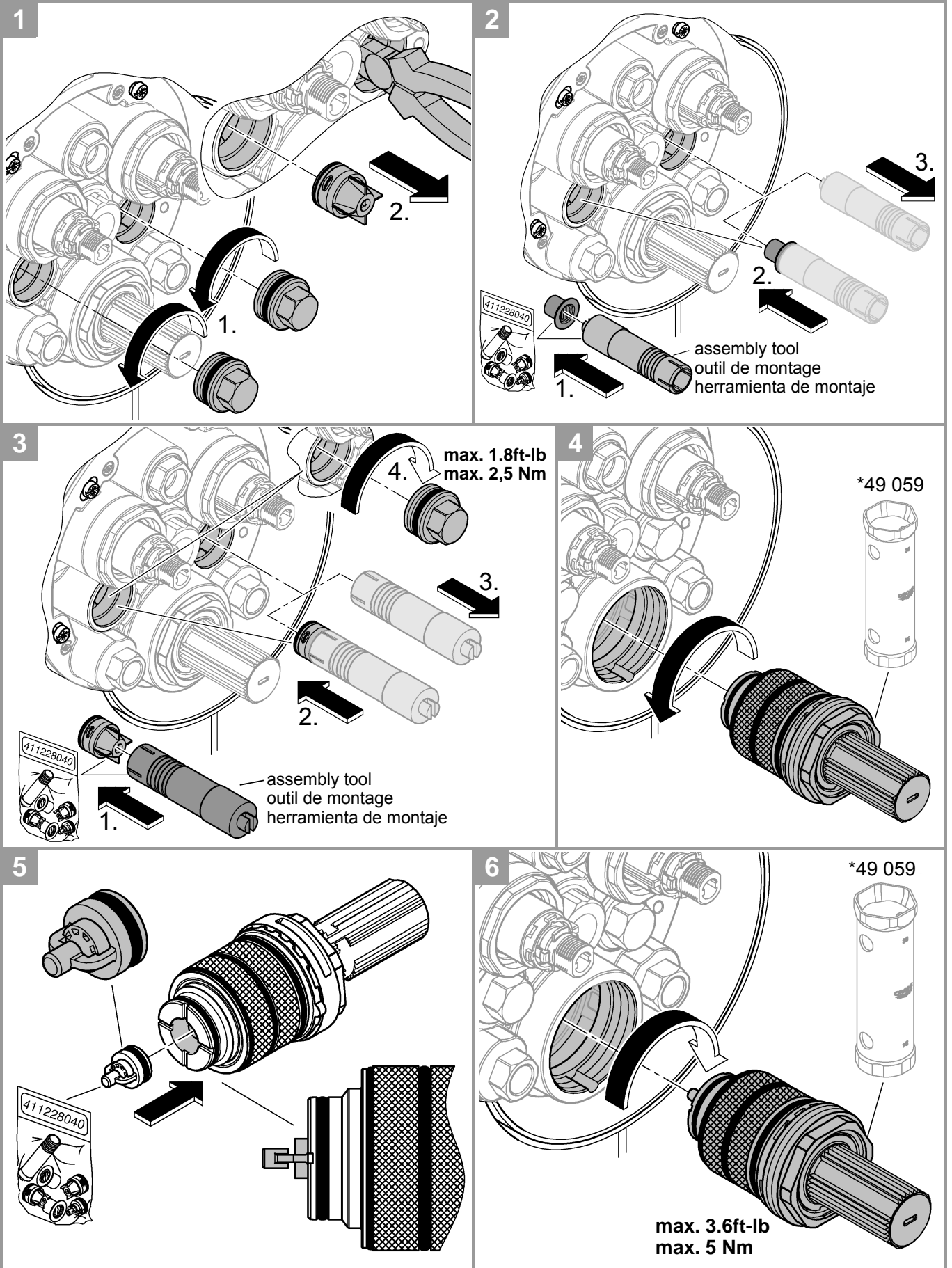
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2







Note

Please know and follow all applicable local plumbing codes when setting the temperature on the water heater.

If your local plumbing code requires to install the limiter to reduce the total flow of water in the shower to 1.8gpm at 80psi, see page 11.

Technical Data

- Flow pressure
- Minimum flow pressure without downstream resistances 7.25 psi
- Minimum flow pressure with downstream resistances 14.5 psi
- Recommended 21.75–72.5 psi
- Minimum flow rate 1.3 gpm
- Temperature
- Hot water supply max. 158 °F
- Recommended for energy saving 140 °F
- Thermal disinfection possible
- Hot water temperature at supply connection min. 3.6 °F higher than mixed water temperature

Flow rates without downstream resistances, see page 1.

These should be observed when dimensioning the outlet!

The following special accessories are available:

- Extension 1" (25mm) (prod. no.: 14 048)
- Service Stops (prod. no.: 14 053)

Thermostat compact cartridge for exchanged water channels: Reversed connections, hot on right and cold on left, replace compact cartridge (prod. no.: 49 003)

Installation

- In order to flush, remove the plugs (Y), see page 2 Fig. [4].
- Open cold and hot water supply and check connections for watertightness!
- Alignment of functional unit by 6° possible.
- Measure valves, see page 5 Fig. [17]. For a dimension larger than 1¾" (44mm), the enclosed extension must be used.

Adjusting to 100 °F

- Before the mixer is put into service if the mixed water temperature measured at the point of discharge varies from the desired temperature set on the thermostat, see page 6 Fig. [19].
- Every time following maintenance on the thermostatic compact cartridge.

Temperature limitation

The safety stop limits the temperature range to 100 °F. If a higher temperature is required, the 100 °F stop can be overridden by pressing the button.

In accordance with local plumbing codes, this thermostat is limited to a maximum temperature of 109 °F.

Danger of frost damage

When the domestic water system is drained, the thermostats must be drained separately since non-return valves are installed in the hot and cold water connections.

Remarque

Vous devez connaître et respecter tous les codes de plomberie locaux applicables pour le réglage de la température du chauffe-eau.

Si votre code de plomberie exige, installez le limiteur de débit pour réduire le débit total de l'eau dans la douche à 6,8 l/min à 5,5 bar, voir page 11.

Caractéristiques techniques

- Pression dynamique
- Pression dynamique minimale sans résistances en aval 0,5 bar
- Pression dynamique minimale avec résistances en aval 1 bar
- Recommandée 1,5 à 5 bars
- Débit minimal 5 l/min
- Température
- Entrée d'eau chaude max. 70 °C
- Recommandée pour économie d'énergie 60 °C
- Désinfection thermique possible
- Température de l'eau chaude au raccord d'alimentation au moins 2 °C supérieure à la température de l'eau mitigée

Débits sans résistances en aval, voir page 1. **Respecter les données indiquées lors du dimensionnement de l'évacuation !**

Les accessoires spéciaux suivants sont disponibles :

- Extension de 25mm (réf. : 14 048)
- Butées d'arrêt d'isolation (réf. : 14 053)

Cartouche compacte de thermostatique pour raccords inversés : Raccords inversés (chaud à droite, froid à gauche), remplacer la cartouche compacte (réf. : 49 003)

Installation

- Pour le rinçage, démonter les clapets (Y), voir page 2, fig. [4].
- Ouvrir les arrivées d'eau froide et d'eau chaude et vérifier l'étanchéité des raccords.
- Possibilité d'orienter l'unité de commande de 6°.
- Mesurer les vannes, voir page 5, fig. [17]. Pour des dimensions supérieures à 44mm, utiliser l'extension fournie.

Réglage sur 38 °C

- Préalablement à la mise en service : si la température de l'eau mitigée mesurée au point de puisage est différente de la température souhaitée réglée au niveau de la poignée graduée du thermostatique, voir page 6, fig. [19].
- Après chaque opération de maintenance sur la cartouche compacte du thermostatique.

Limitation de la température

La température est limitée à 38 °C par la butée de sécurité. Il est possible d'obtenir une température plus élevée (supérieure à 38 °C) en appuyant sur le bouton.

Conformément aux directives locales d'installation, ce thermostatique est limité à une température max. de 43 °C.

Attention en cas de risque de gel

Lors du vidage de l'installation sanitaire, il convient de vider séparément les thermostatiques dont les raccords d'eau froide et d'eau chaude sont équipés de clapets anti-retour.

Nota

Debe conocer y cumplir todos los códigos locales aplicables para ajustar la temperatura del calentador de agua.

Si el código de instalación local requiere, instale el limitador de caudal para reducir el caudal total de agua en la ducha a 1.8gpm a 80psi, véase la página 11.

Datos técnicos

- Presión de trabajo
 - Presión mínima de trabajo sin resistencias postacopladas 7.25 psi
 - Presión mínima de trabajo con resistencias postacoplada 14.5 psi
 - Recomendado 21.75-72.5 psi
- Caudal mínimo 1.3 gpm
- Temperatura
 - Entrada de agua caliente máx. 158 °F
 - Recomendado para ahorrar energía 140 °F
 - Desinfección térmica posible
- La temperatura del agua caliente en la acometida de mín. 3.6 °F es superior a la temperatura del agua mezclada

Caudales sin resistencias postacopladas, véase la página 1.

Tenga en cuenta las dimensiones del desagüe.

Los siguientes accesorios especiales están disponibles:

- Prolongación de 1" (25mm) (n.º de pedido: 14 048)
- Cierres de servicio (n.º de pedido: 14 053)

Cartuchos compactos de termostato para las entradas de agua intercambiadas: Conexión invertida, sustituir los cartuchos compactos, los calientes en el lado derecho y los fríos en el izquierdo (n.º de pedido: 49 003)

Instalación

- Para lavar, desmonte el tapón (Y), véase la página 2 fig. [4].
- Abrir las llaves de paso del agua fría y del agua caliente y comprobar la estanqueidad de las conexiones.
- Es posible alinear la unidad de funcionamiento 6°.
- Medir las válvulas, véase la página 5 fig. [17]. Para una medida más grande de 1³/₄" (44mm), se debe utilizar la prolongación suministrada.

Ajustar a 100 °F

- Antes de la puesta en servicio, si la temperatura del agua mezclada medida en el punto de consumo difiere de la temperatura teórica ajustada en el termostato, véase la página 6 fig. [19].
- Después de cada operación de mantenimiento en el cartucho compacto del termostato.

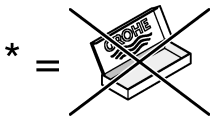
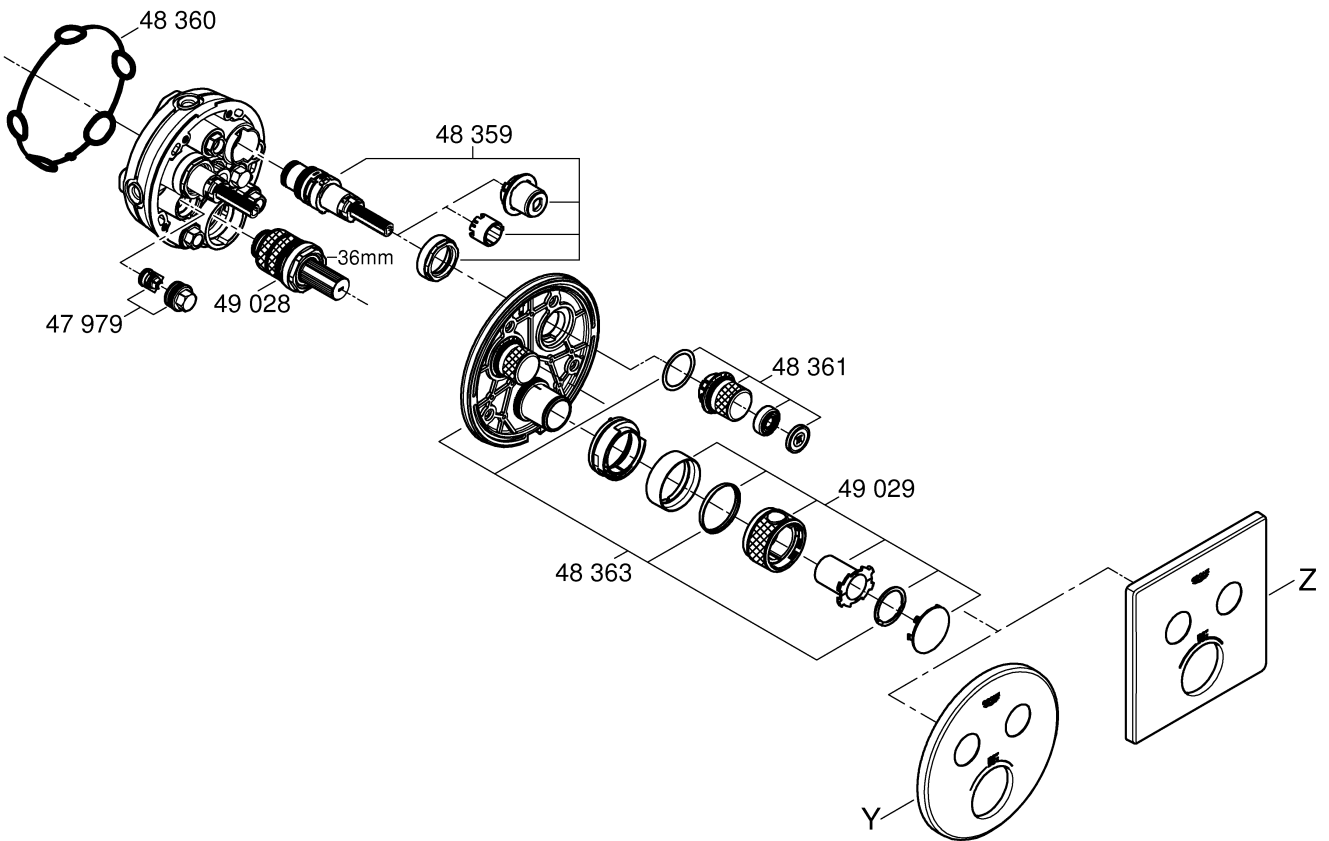
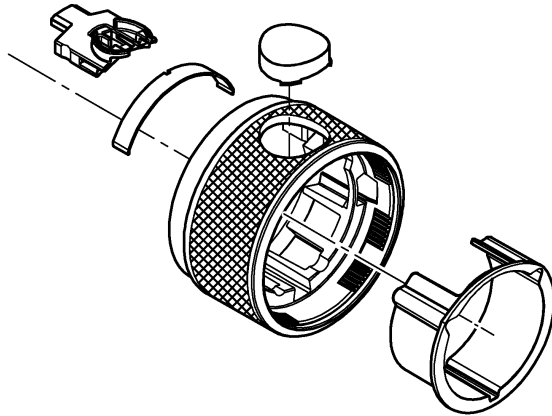
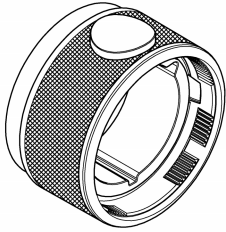
Limitación de la temperatura

La gama de temperaturas está limitada a 100 °F mediante el cierre de seguridad. Si desea seleccionar una temperatura más alta, se puede exceder el límite de 100 °F presionando la tecla.

En las normas de instalación locales el termostato tiene una temperatura máxima establecida de 109 °F.

Atención en caso de peligro de helada

Al vaciar la instalación de la casa, los termostatos deberán vaciarse por separado, ya que hay válvulas antirretorno en las conexiones del agua fría y caliente.



| | | | | | |
|---------|--|---------|------|-----|----|
| | | *49 059 | 36mm | | |
| | | | | | |
| | | *49 003 | | | |
| | | | | | |
| *14 053 | | *14 048 | | +25 | |
| | | | | | |
| | | | | Y | Z |
| 49 046 | | 49 052 | | 10 | 10 |
| 49 047 | | 49 053 | | 14 | 14 |

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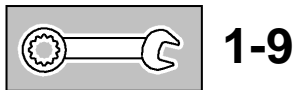
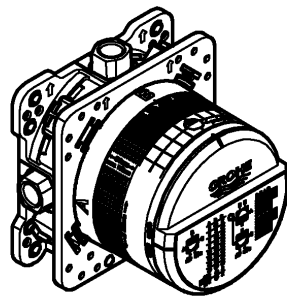
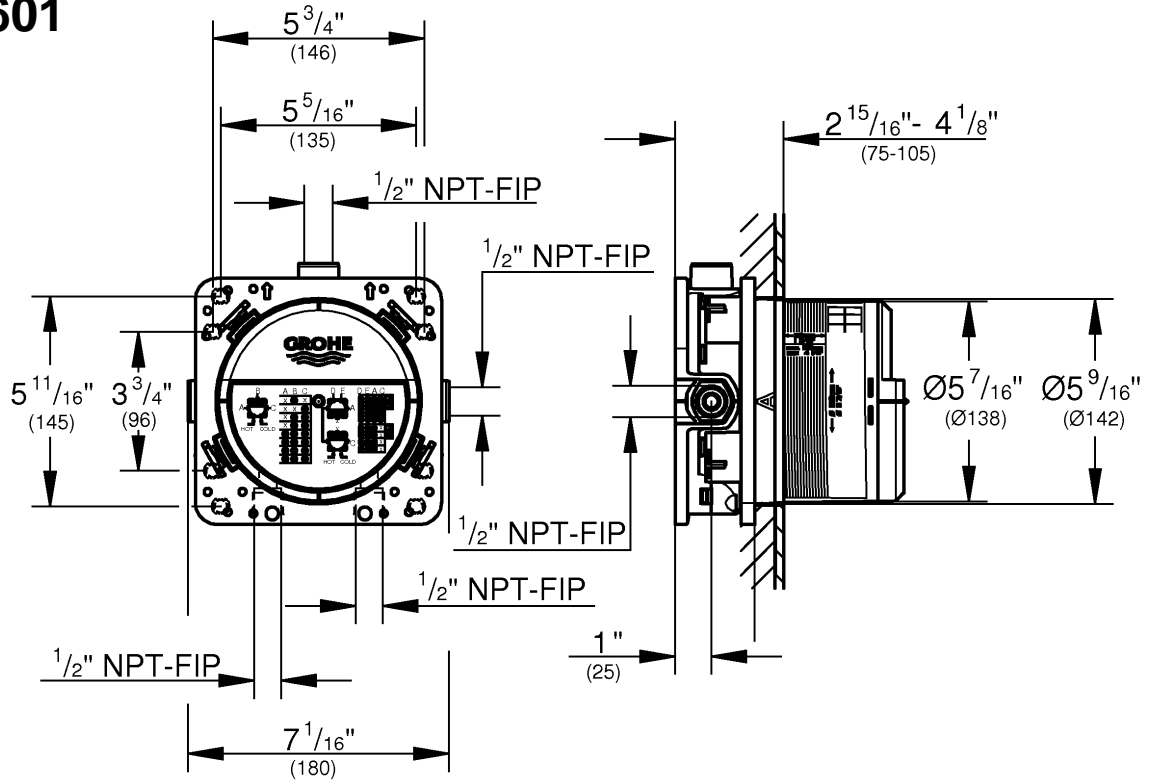
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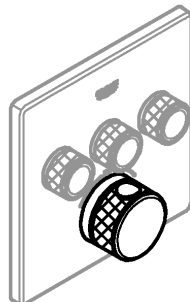
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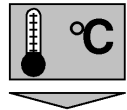
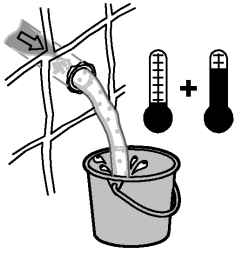


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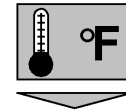


Grohtherm SmartControl

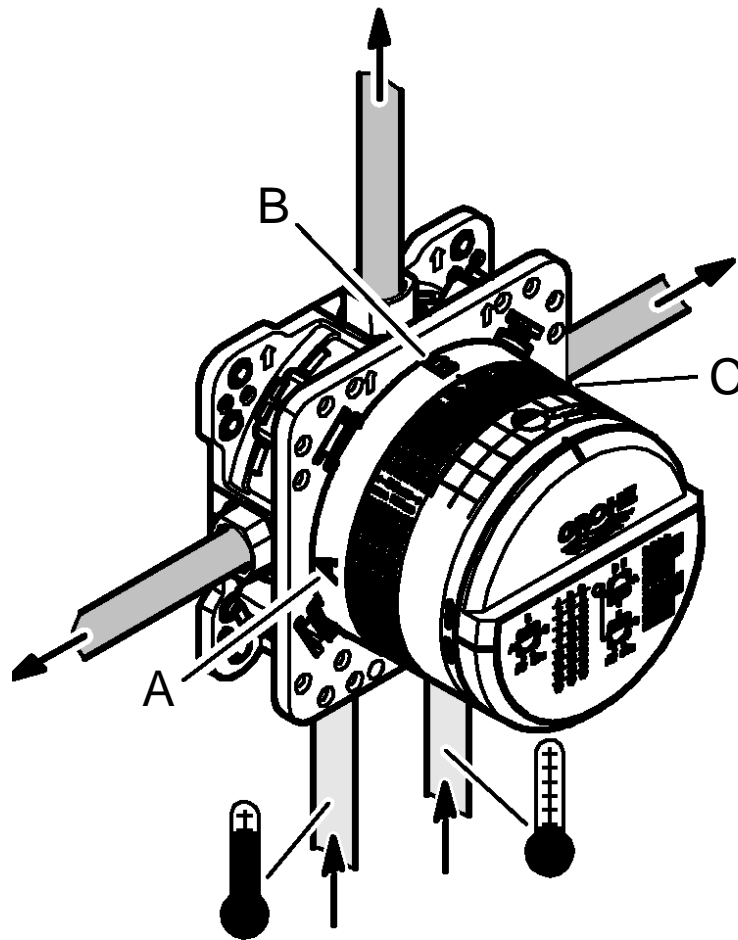
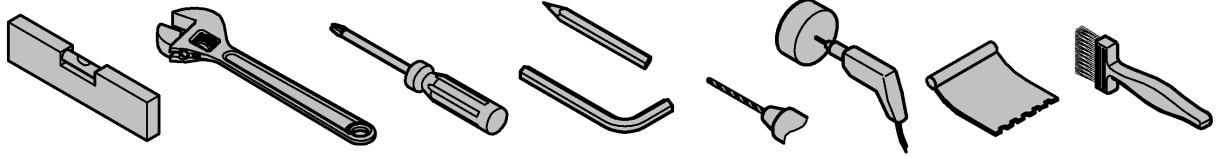




max.
70 °



max.
158 °



Applications

Operation is possible with:

- Pressurised storage heaters
- Thermally/hydraulically controlled instantaneous water heaters

Operation with unpressurised storage heaters (displacement water heaters) is **not** possible!

Technical data

- Operating pressure: max.145 psi
- Test pressure 232 psi

Note:

To comply with noise levels if static pressure exceeds 72.5 psi, a pressure reducing valve must be fitted.

Installation of the box

- Make drill holes for the box and slots for the pipes.
- Installation depth 2 15/16" - 4 1/8".
- If the box is installed too deeply an extension can be applied.

Installation options, see pages 4-9.

- Installation in studding
- Installation with spacers
- Installation directly on the wall
- Installation in the wall
- Installation on prefabricated house assembly plates or prefabricated shells

Connecting the pipes

The outflows intended for this purpose are to be used.

- Recommended configuration options:
 - Grotherm SmartControl see from page 11.
- Non-binding outflows must be sealed with the accompanying plug (X).
- Check connections for water-tightness.
- **Plugs (Y) must be assembled**, see page 8, Fig. [6].

Apply carrier material as sealant, see page 9, Fig. [9] to [11].

Plaster and tile the wall.

Do **not** cut the fitting template prior to final installation.

Domaine d'application

Utilisation possible avec :

- Réservoirs sous pression
- Chauffe-eau instantanés hydrauliques/thermiques

Le fonctionnement avec des accumulateurs sans pression (chauffe-eau à écoulement libre) **n'est pas** possible !

Caractéristiques techniques

- Pression de service max.10 bars
- Pression d'épreuve 16 bars

Remarque :

Il est recommandé d'installer un réducteur de pression en cas de pressions statiques supérieures à 5 bars.

Installation du boîtier

- Préparer des trous pour le boîtier et des fentes pour les canalisations.
- Profondeur de montage : 75-105mm.
- Si le boîtier est installé trop en profondeur, il est possible d'utiliser une rallonge.

Possibilités de montage, voir pages 4-9.

- Montage dans un support charpenté
- Montage avec entretoises
- Montage directement sur le mur
- Montage dans le mur
- Montage sur plaques de montage pour préfabriqué ou plaques pré-fabriquées

Brancher les canalisations

Il convient d'utiliser les sorties prévues à cet effet.

- Possibilités de configuration recommandées :
 - Grohtherm SmartControl voir à partir de la page 11.
- Les sorties non obstruées doivent être étanchéifiées à l'aide des bouchons (X) fournis.
- Vérifier l'étanchéité des raccordements.
- **Les bouchons (Y) doit être monté**, voir page 8, fig. [6].

Monter le support pour le produit d'étanchéité, voir page 9, fig. [9] à [11].

Enduire complètement le mur et le carreler.

Ne pas raccourcir le gabarit de montage avant le montage final.

E

Campo de aplicación

Es posible el funcionamiento con:

- Acumuladores de presión
- Calentadores instantáneos con control hidráulico/térmico

No es posible el funcionamiento con acumuladores sin presión (calentadores de agua sin presión).

Datos técnicos

- Presión de utilización máx. 145 psi
- Presión de verificación 232 psi

Nota:

Si la presión en reposo es superior a 72.5 psi, se recomienda instalar un reductor de presión para alcanzar los valores de emisión de ruidos.

Instalación de la caja

- Hacer orificios en la caja así como ranuras en las tuberías.
- Profundidad de montaje 2 15/16" - 4 1/8".
- Si la caja se ha montado en un sitio demasiado profundo, se puede introducir una prolongación.

Posibilidades de montaje, véanse las páginas 4-9.

- Montaje en una pared de tablonos
- Montaje con separador
- Montaje directo en la pared
- Montaje en la pared
- Montaje en placas de montaje de viviendas prefabricadas o células acabadas

Conectar las tuberías

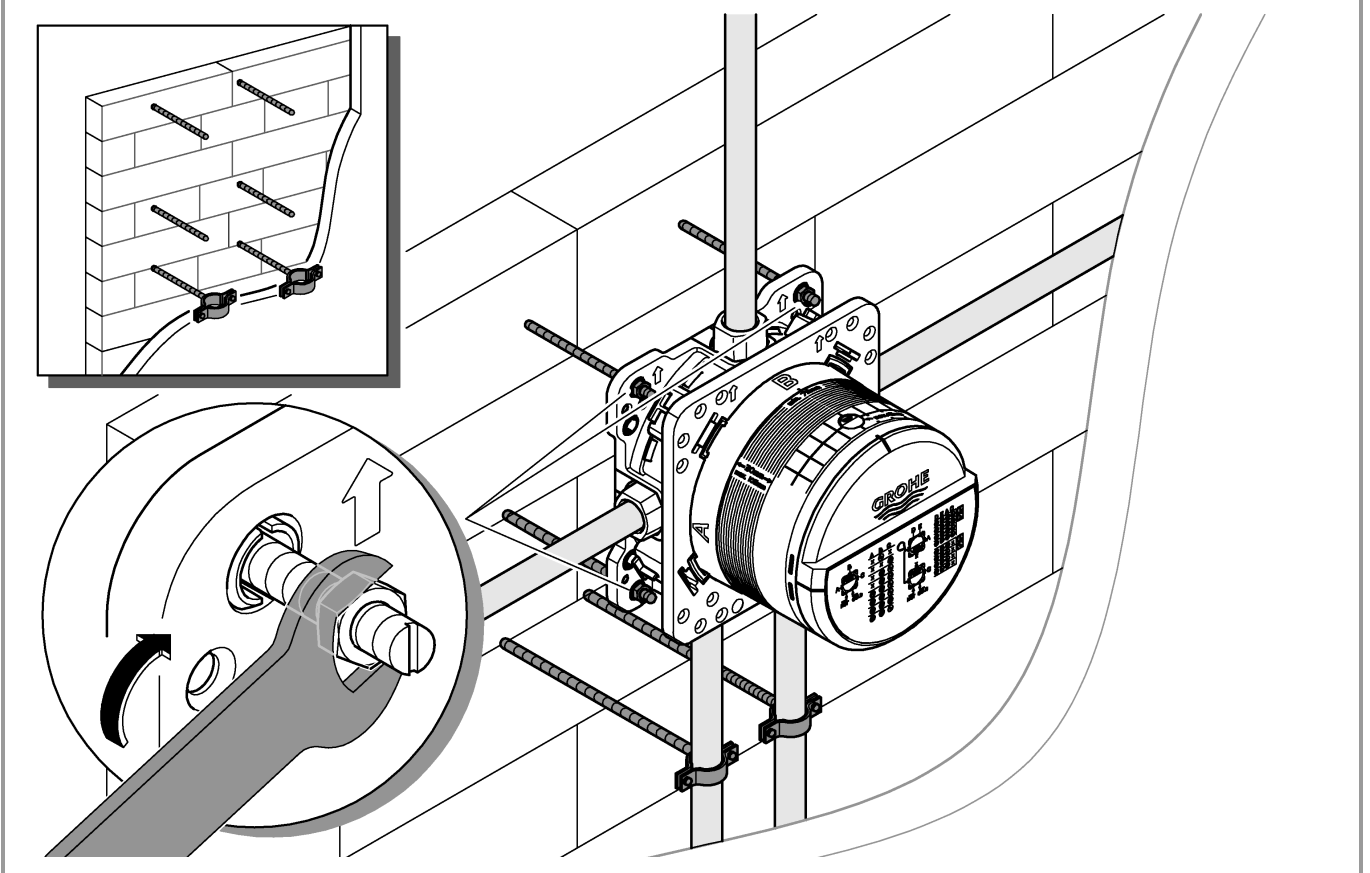
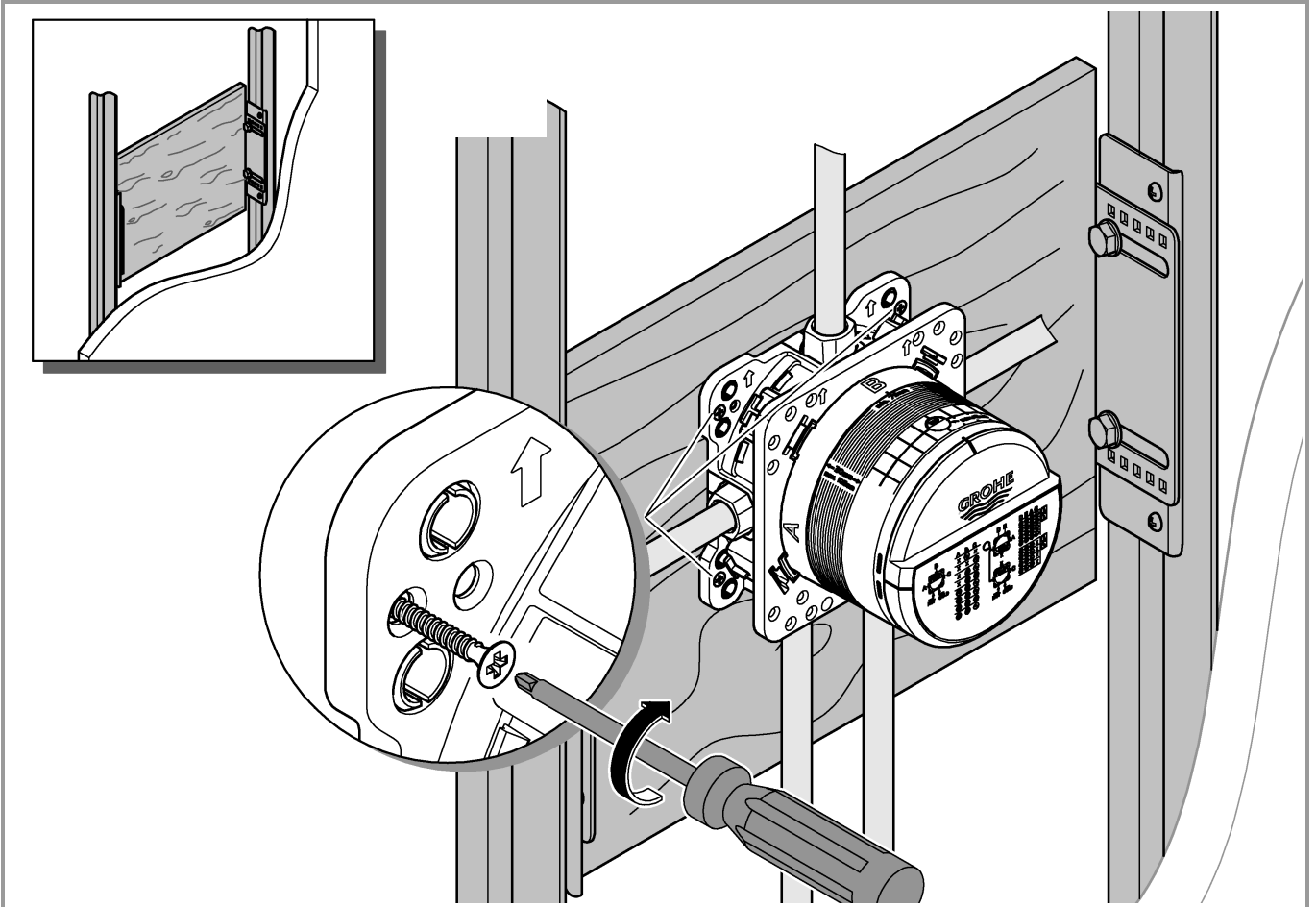
Se deben utilizar las salidas previstas para ello.

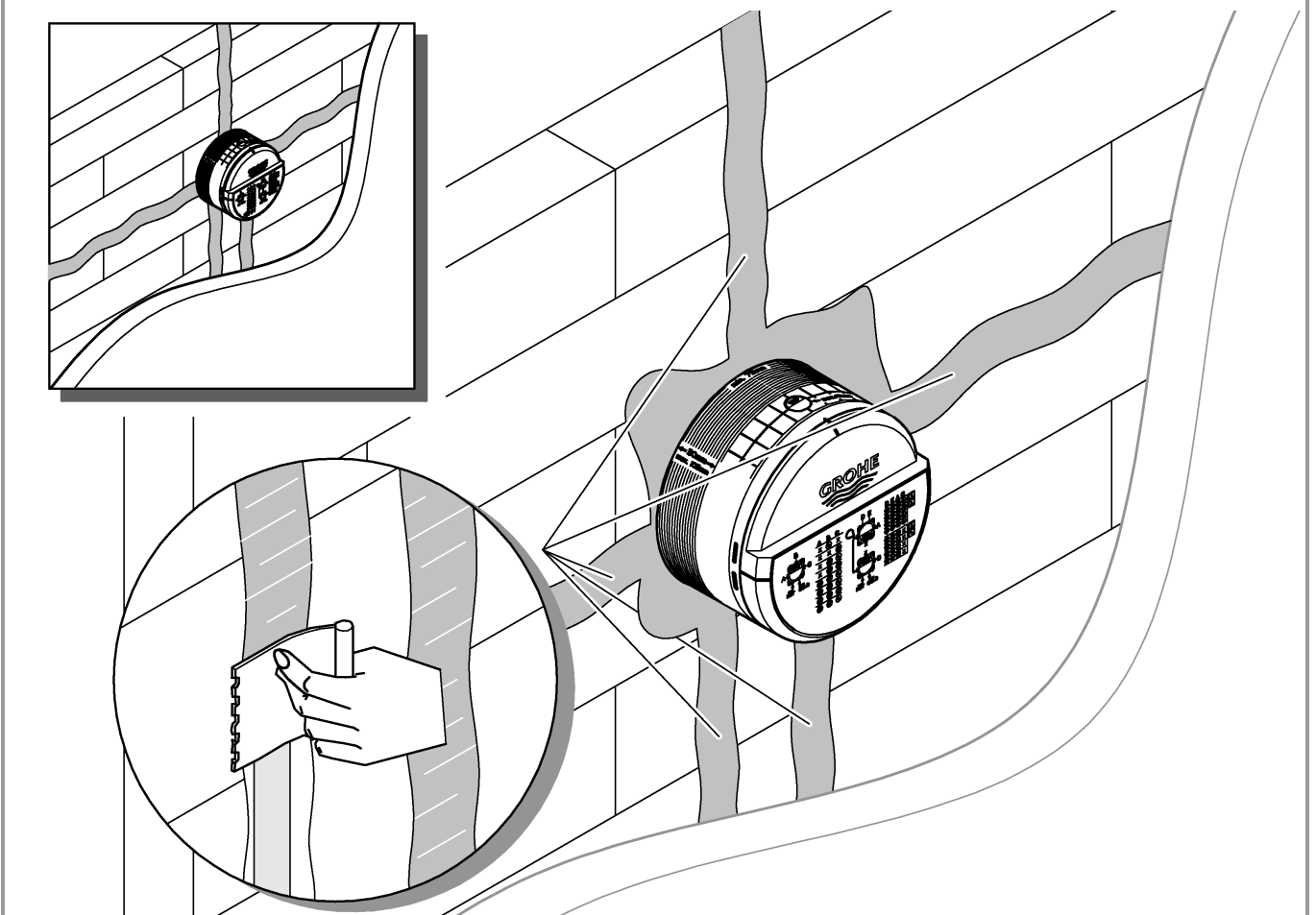
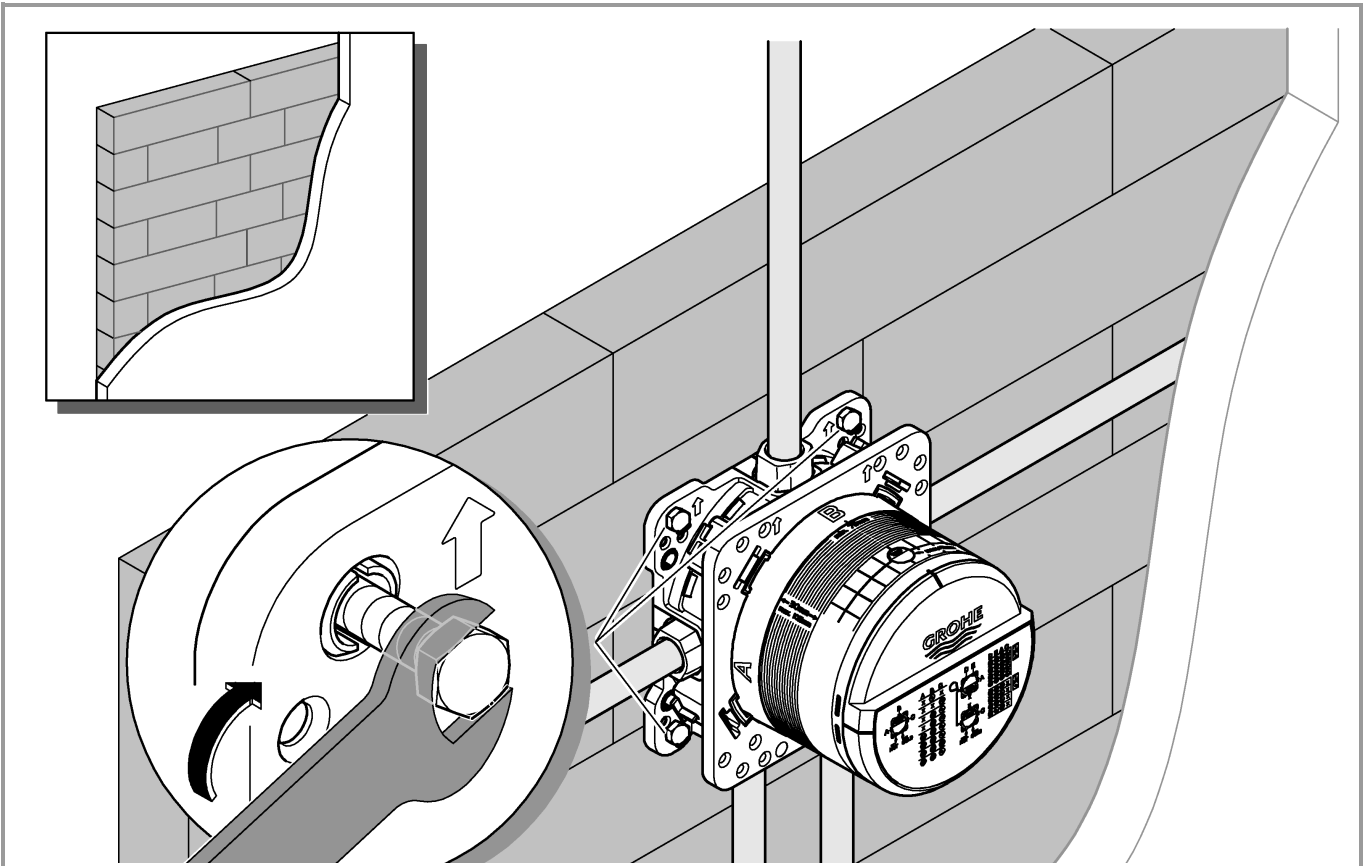
- Posibilidades de configuración recomendadas:
 - Véase Grohtherm SmartControl a partir de la página 11.
- Las salidas libres se deben sellar con el tapón suministrado (X).
- Comprobar la estanqueidad de las conexiones.
- **Los tapones (Y) se debe montar**, véase la página 8, fig. [6].

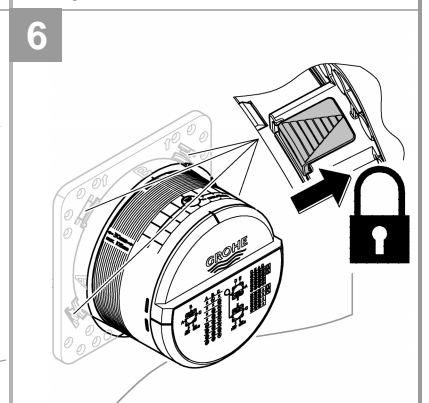
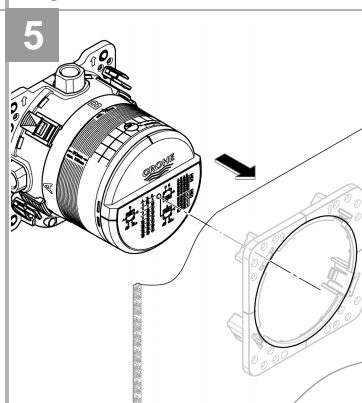
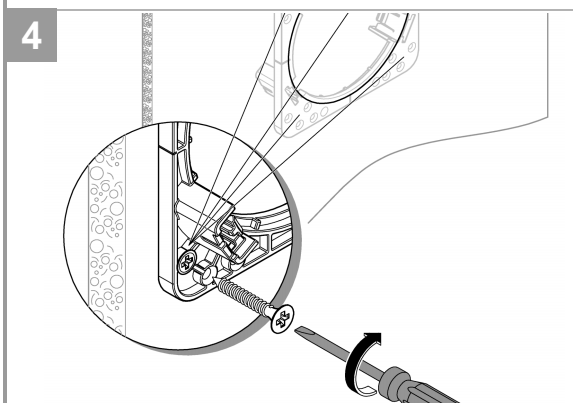
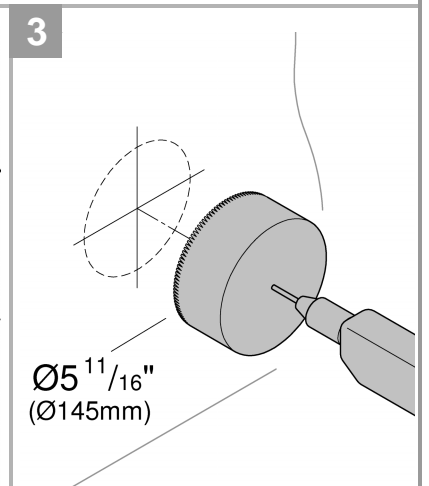
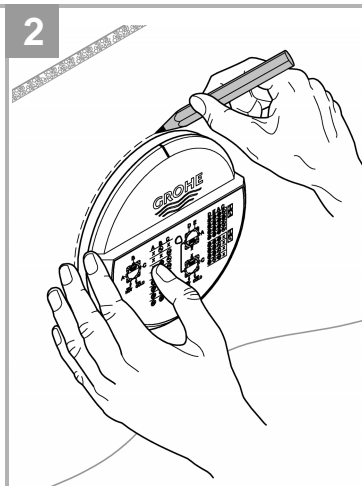
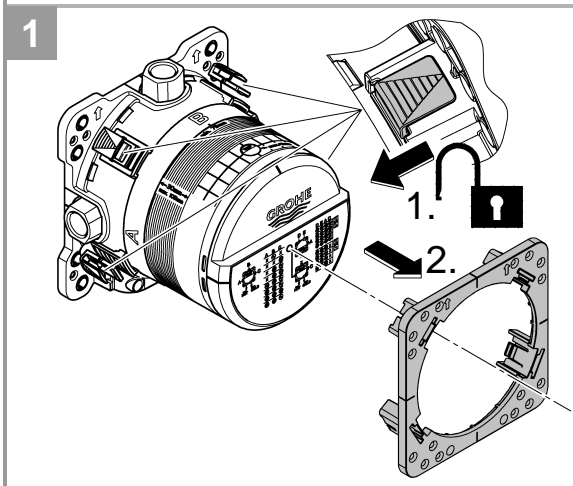
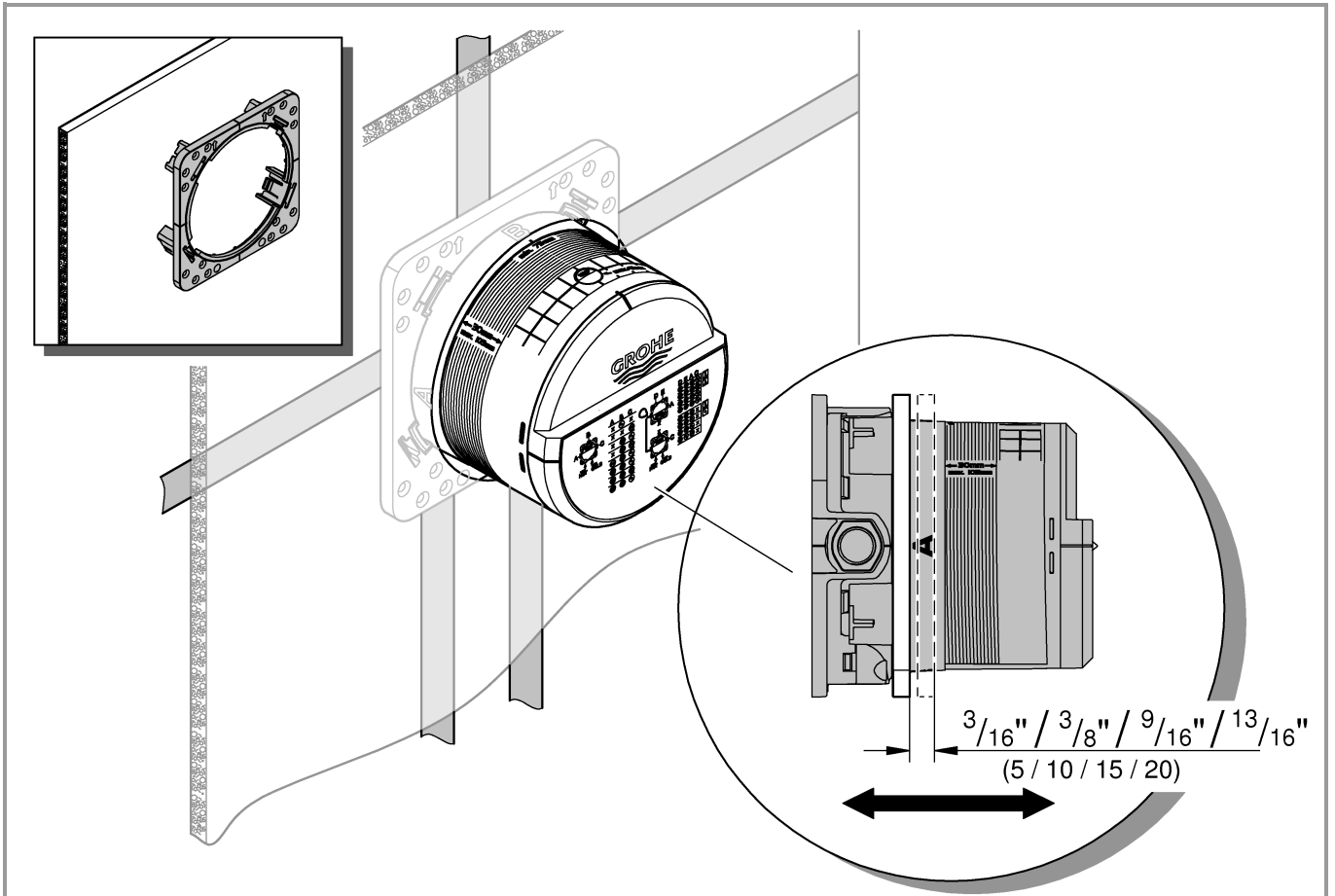
Conseguir material de base para el impermeabilizante, véase la página 9, fig. [9] hasta la [11].

Concluir el enlucido y alicatado de la pared.

No acortar la plantilla de montaje antes de proceder con la instalación de acabado.



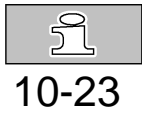
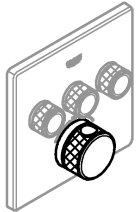




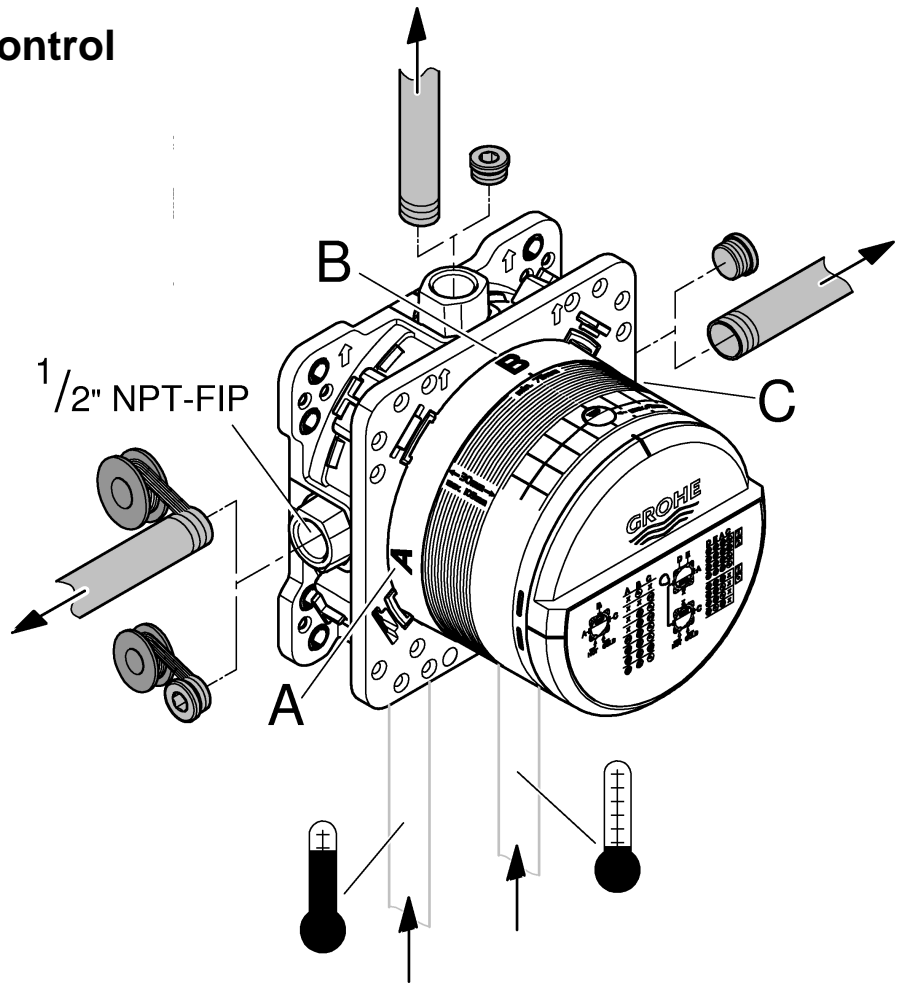
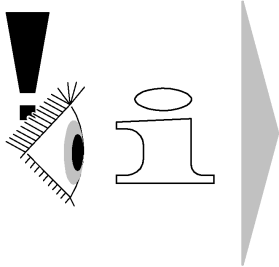


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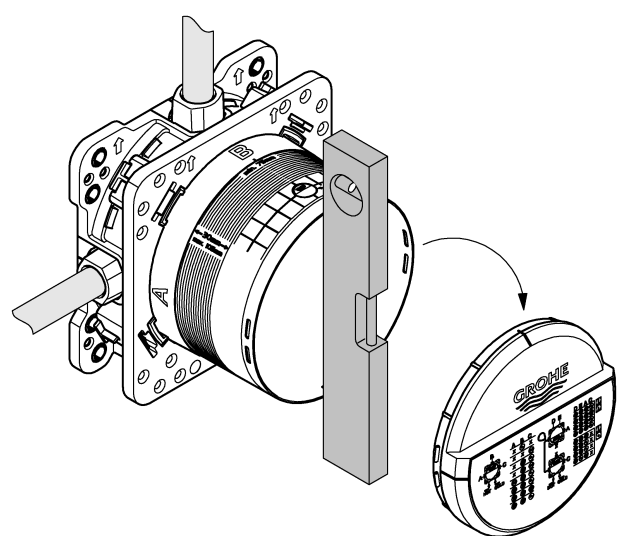
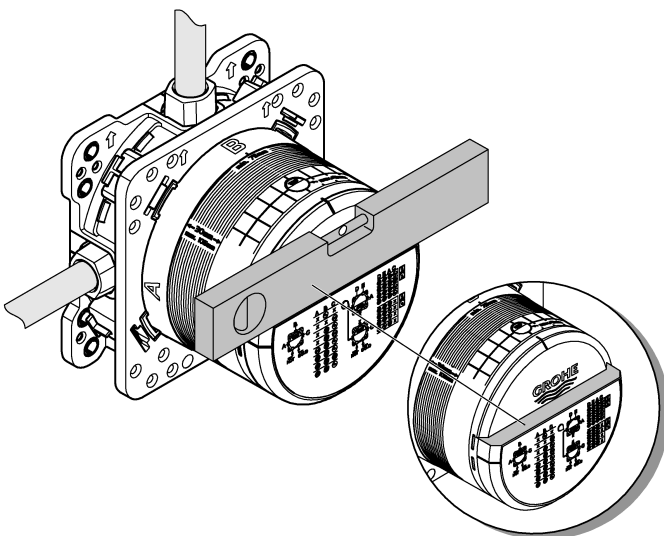
Grotherm Smart Control



10-23

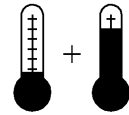
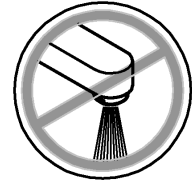
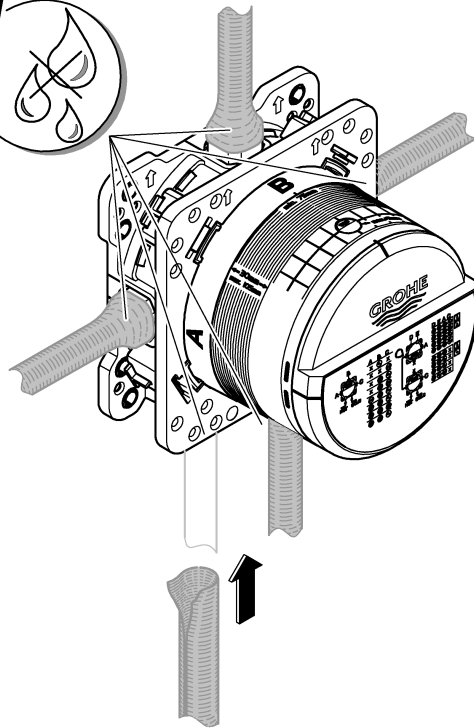
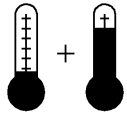
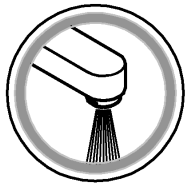


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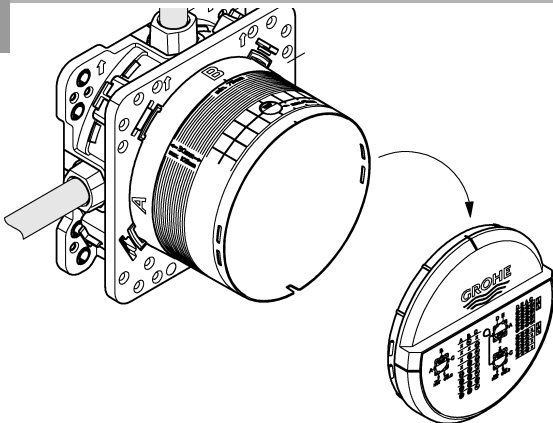




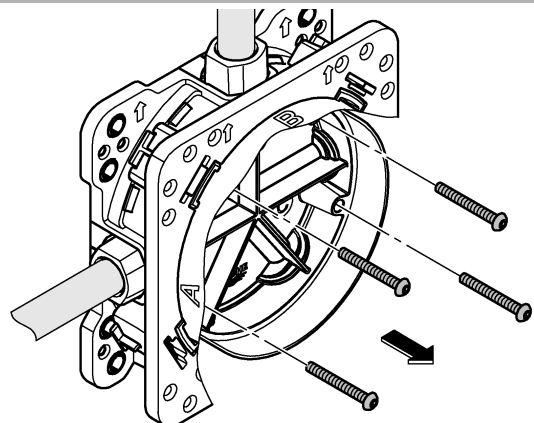
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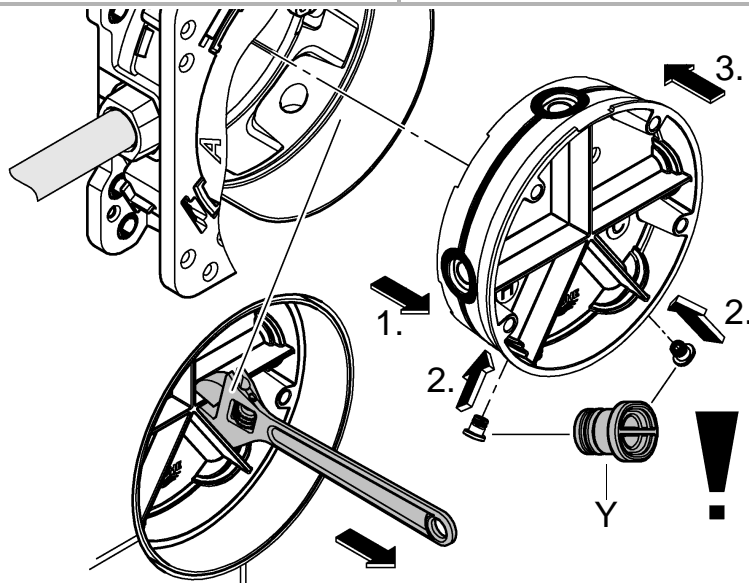
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5

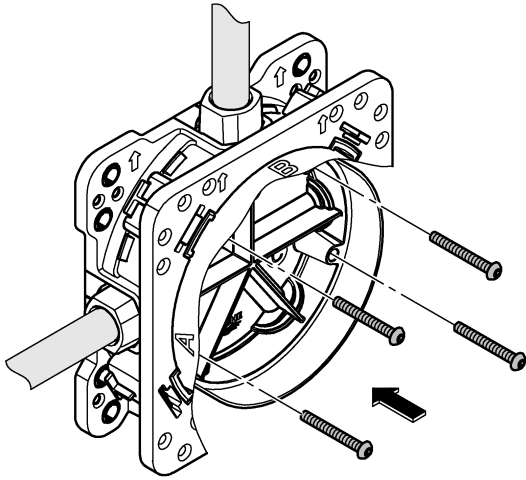


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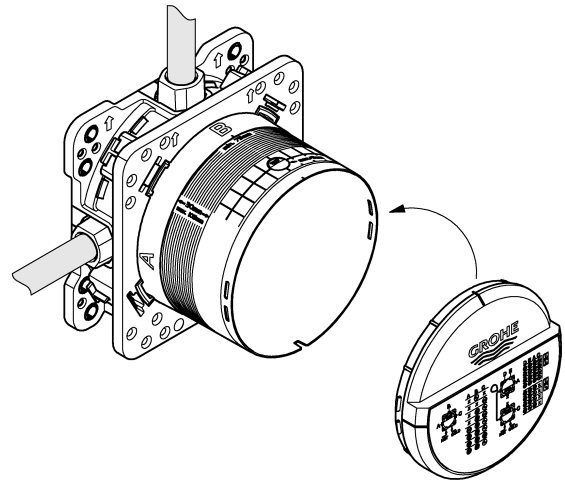




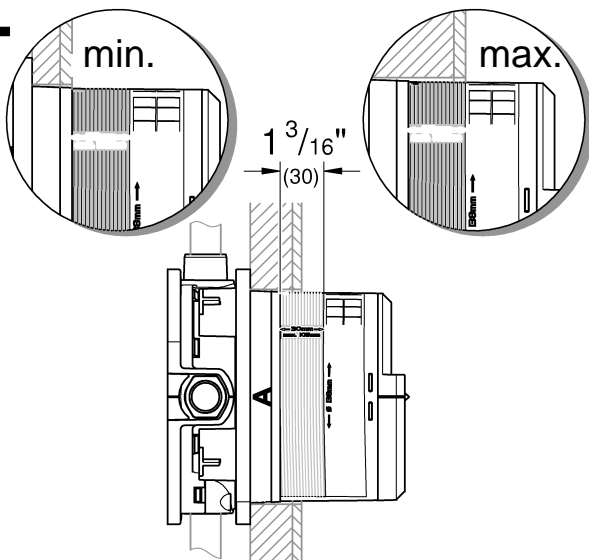
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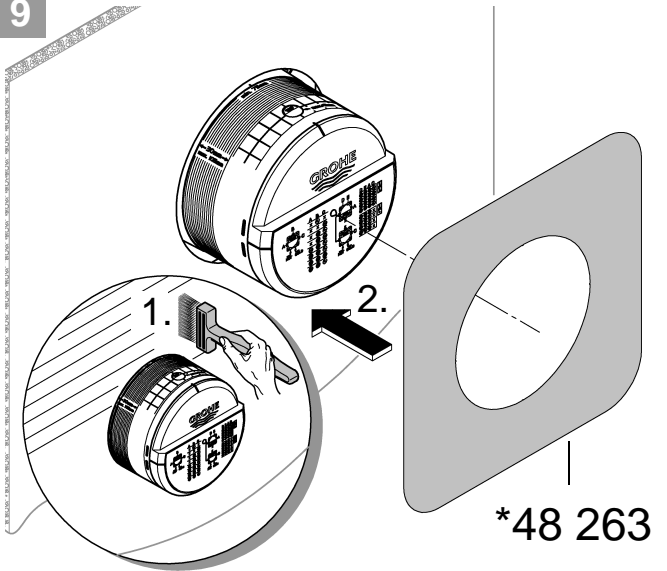
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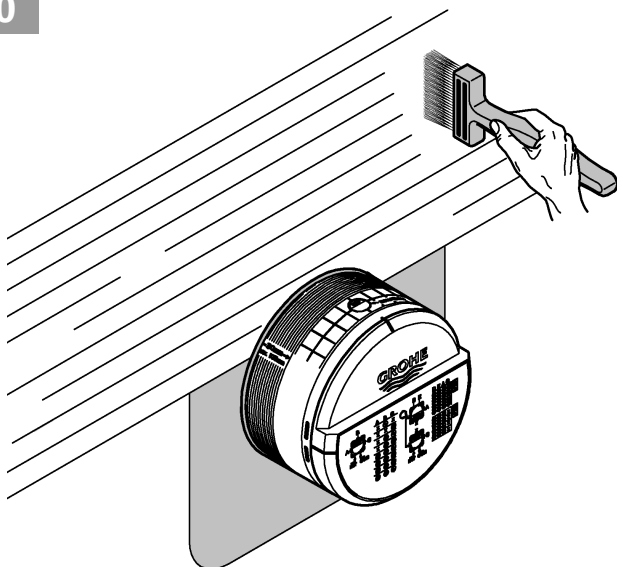
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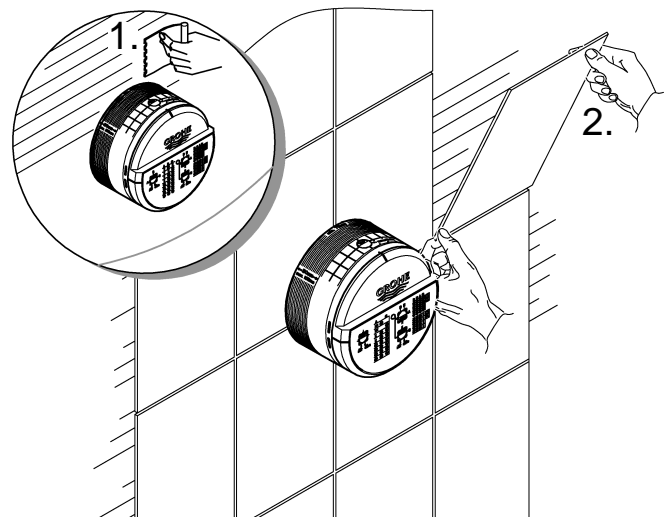
9



10



11



Technical specifications Grotherm SmartControl

Thermostat

- Flow pressure
- Minimum flow pressure without downstream resistances 7.25 psi
- Minimum flow pressure with downstream resistances 14.5 psi
- Recommended 21.75 – 72.5 psi
- Minimum flow rate 1.3 gpm
- Temperature
- Hot water inlet max. 158 °F
- Recommended for energy saving 140 °F
- Thermal disinfection possible
- Hot water temperature at supply connection min. 3.6 °F higher than mixed water temperature

Flow rates without downstream resistances, see page 12-23. **These are to be observed when dimensioning the outlet!**

- Installation options, see page 11.
- Recommended configuration options, see from page 12.

The following special accessories are available:

- Extension 1" (prod. no.: 14 048)
- Service stops (prod. no.: 14 053)
- Reversed connection, hot on right – cold on left replace thermostat cartridges (prod. no.: 49 003)

Caractéristiques techniques Grotherm SmartControl

Thermostat

- Pression dynamique
- Pression dynamique minimale sans résistances en aval 0,5 bar
- Pression dynamique minimale avec résistances en aval 1 bar
- Recommandée 1,5 à 5 bars
- Débit minimal 5 l/min
- Température
- Arrivée d'eau chaude max. 70 °C
- Recommandée pour une économie d'énergie 60 °C
- Désinfection thermique possible
- Température de l'eau chaude au raccord d'alimentation au moins 2 °C de plus que la température de l'eau mitigée

Débits sans résistances en aval, voir pages 12-23.

Veillez en tenir compte lors du dimensionnement de l'évacuation!

- Possibilités de montage, voir page 11.
- Possibilités de configuration recommandées, voir à partir de la page 12.

Les accessoires spéciaux suivants sont disponibles :

- Rallonge de 25mm (réf. : 14 048)
- Robinets d'arrêt (réf. : 14 053)
- Raccordement inversé, chaud à droite - froid à gauche, remplacer la cartouche du thermostat (réf. : 49 003)

Datos técnicos de Grotherm SmartControl

Thermostat

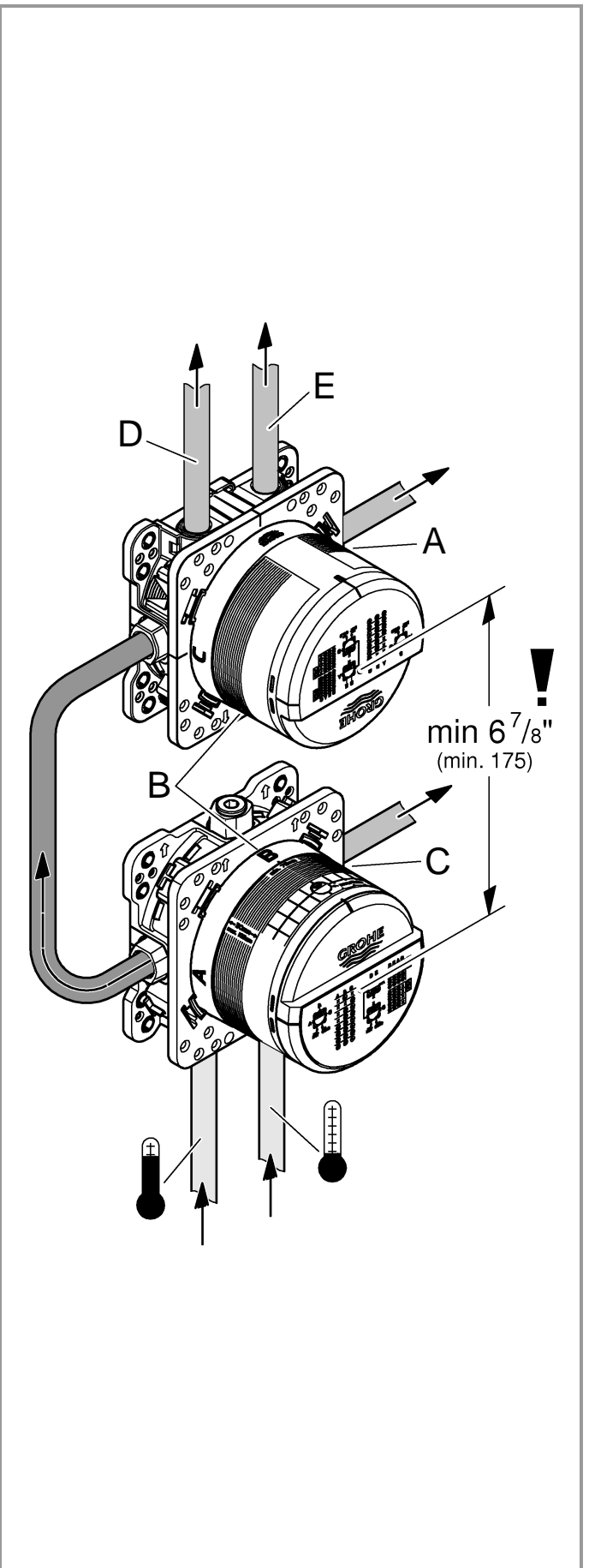
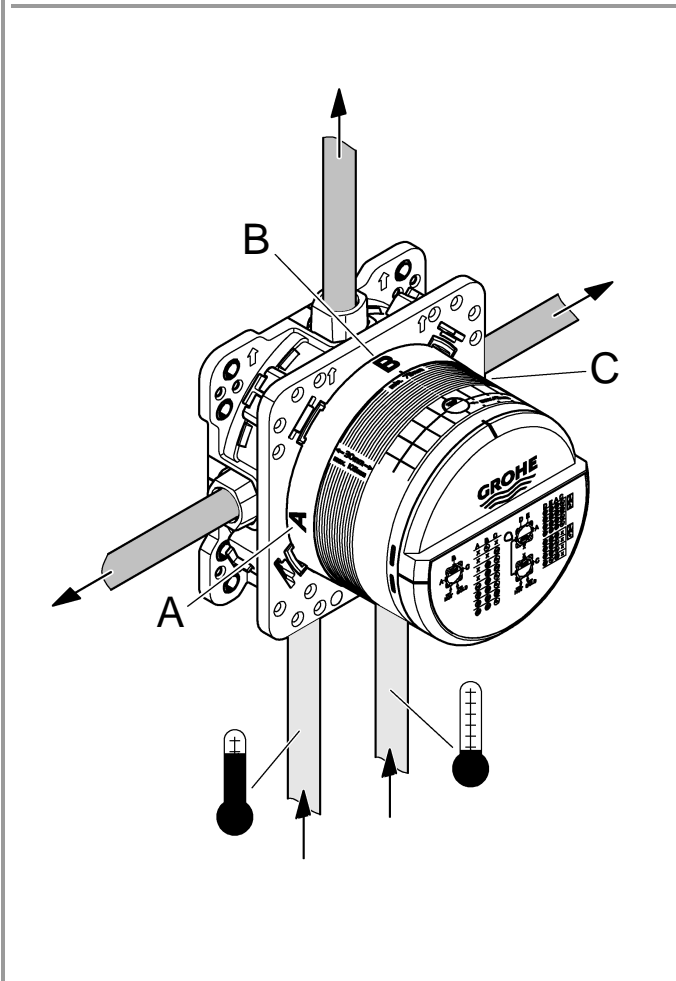
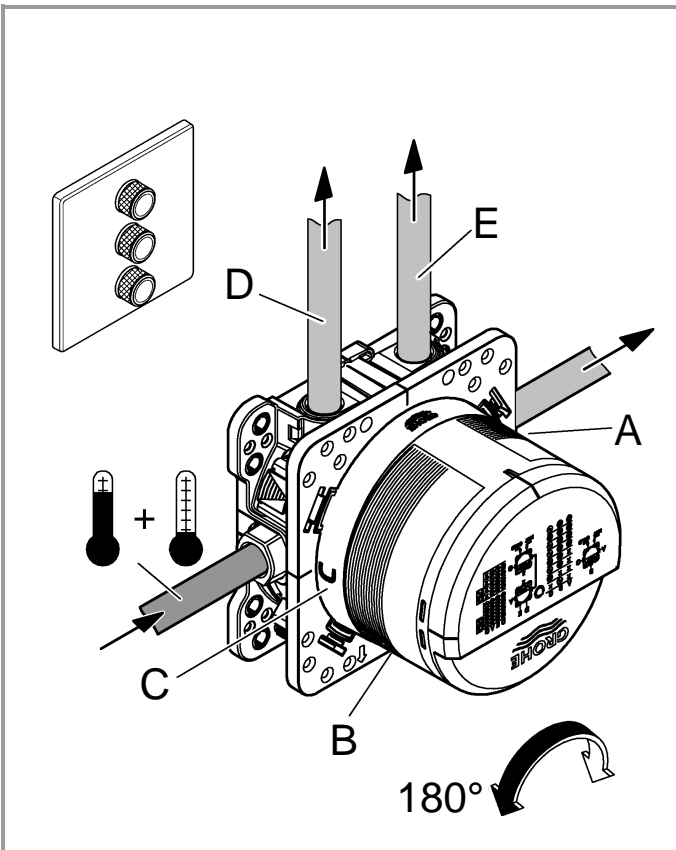
- Presión de trabajo
- Presión mínima de trabajo sin resistencias posacopladas 7.25 psi
- Presión mínima de trabajo con resistencias posacopladas 14.5 psi
- Presión recomendada 21.75 – 72.5 psi
- Caudal mínimo 1.3 gpm
- Temperatura
- Entrada de agua caliente máx. 158 °F
- Recomendada para ahorrar energía 140 °F
- Desinfección térmica posible
- La temperatura del agua caliente en la acometida mín. 3.6 °F superior a la temperatura del agua mezclada

Caudales sin resistencias posacopladas, véanse las páginas 12-23. **Tenga en cuenta las dimensiones del desagüe.**

- Posibilidades de montaje, véase la página 11.
- Posibilidades de configuración recomendadas, véase a partir de la página 12.

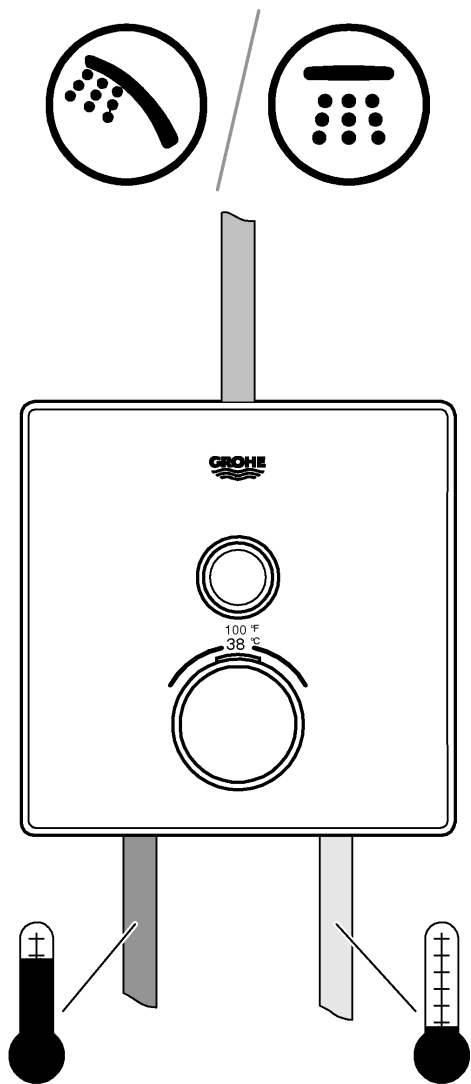
Los siguientes accesorios opcionales están disponibles:

- Prolongación de 1" (n.º de pedido: 14 048)
- Bloqueos de seguridad (n.º de pedido: 14 053)
- Conexión invertida, derecha caliente - izquierda frío sustituir los cartuchos del termostato (n.º de pedido: 49 003)



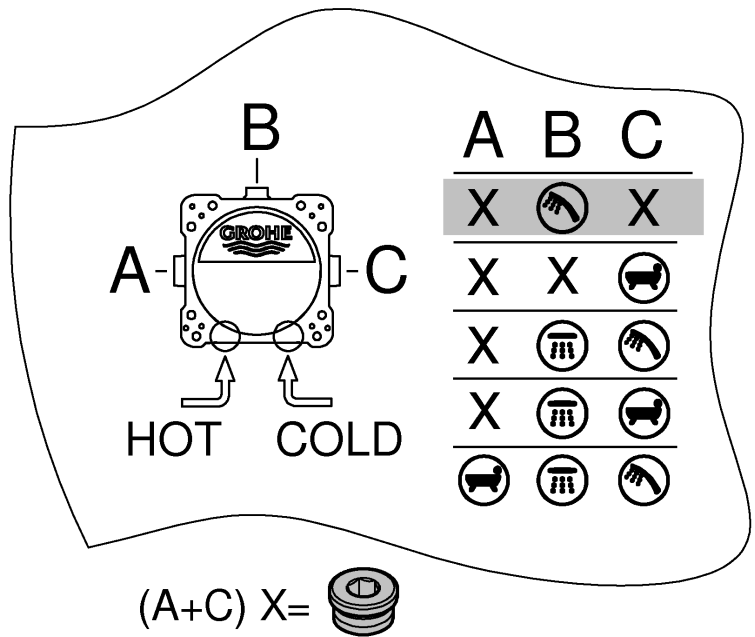


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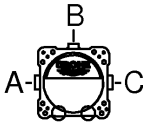
| | | | | | | | |
|---|------|-----|------|-----|------|------|-----|
| | psi | | | | | | gpm |
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| B | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |

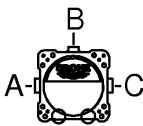
| | | | | | | | |
|---|------|------|----|------|------|----|-------|
| | bar | | | | | | l/min |
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| B | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |

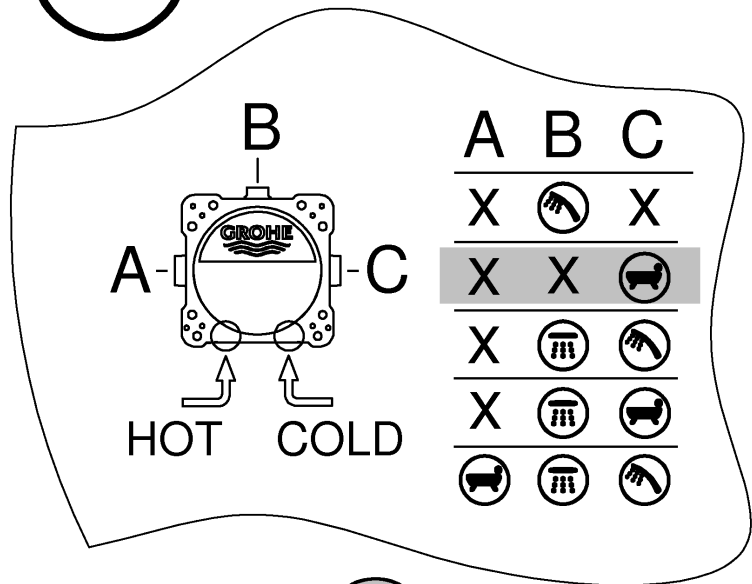
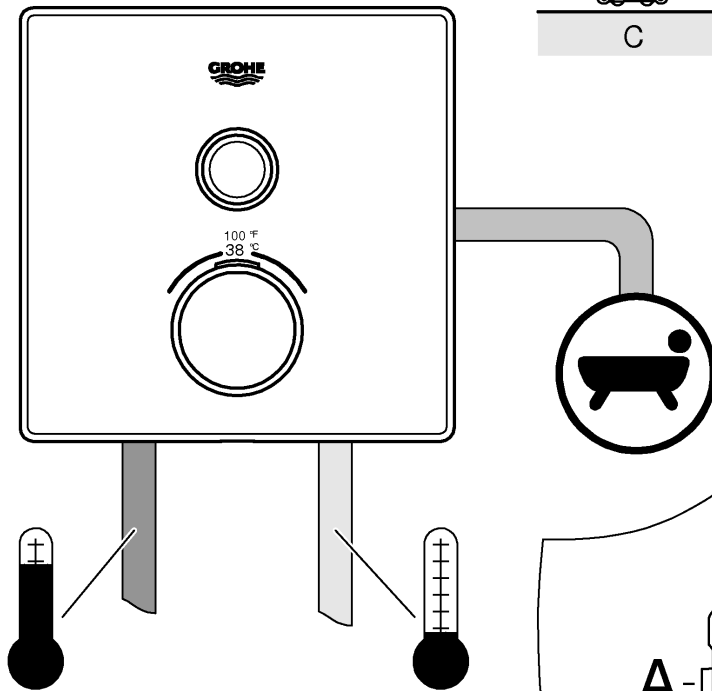




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|  | psi | | | | | | gpm |
|---|------|-----|------|-----|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |

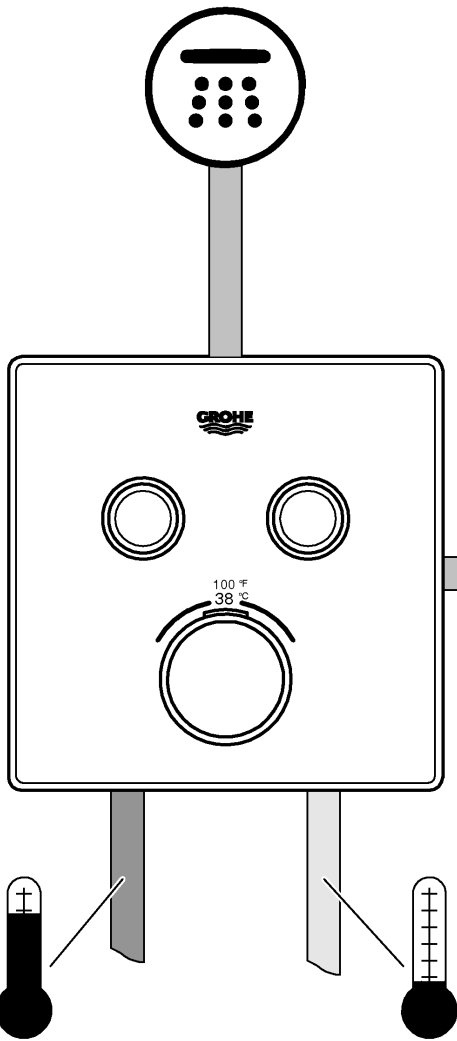
|  | bar | | | | | | l/min |
|---|------|------|----|------|------|----|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |



(A+B) X=

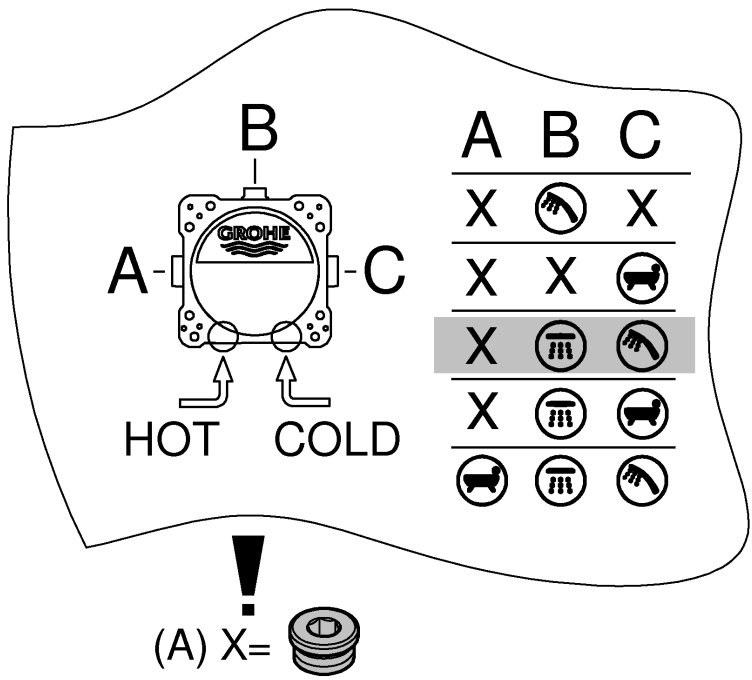


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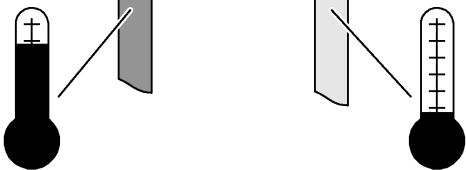
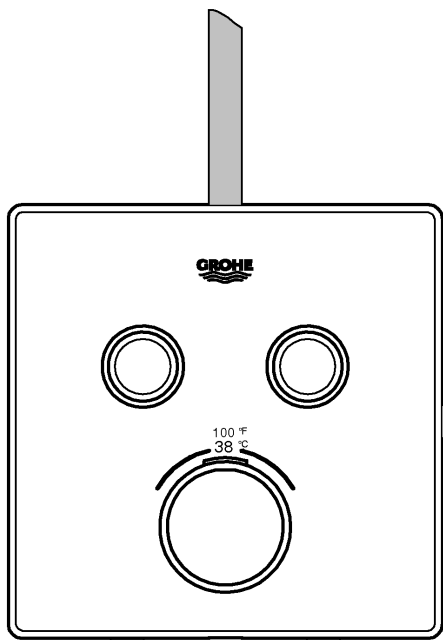
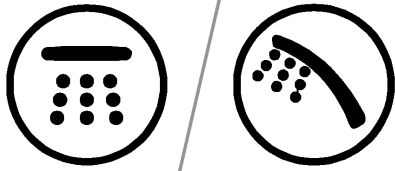
| A- -C | psi | | | | | | gpm |
|--------------|------|-----|------|-----|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| B | 3,7 | 5,2 | 6,3 | 7,3 | 8,2 | 9 | |
| C | 4 | 5,6 | 6,9 | 7,9 | 8,9 | 9,7 | |
| B + C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |

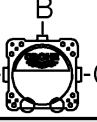
| A- -C | bar | | | | | | l/min |
|--------------|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| B | 13,9 | 19,6 | 24 | 27,7 | 31 | 33,9 | |
| C | 15 | 21,2 | 26 | 30 | 33,6 | 36,8 | |
| B + C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |

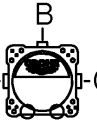


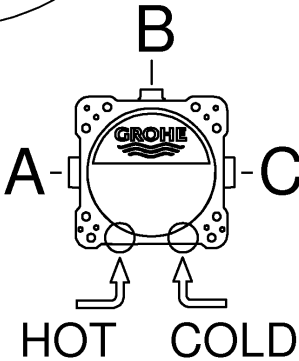











Grohtherm SmartControl




|  | psi | | | | | | gpm |
|---|------|-----|------|-----|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| B | 3,7 | 5,2 | 6,3 | 7,3 | 8,2 | 9 | |
| C | 4 | 5,6 | 6,9 | 7,9 | 8,9 | 9,7 | |
| B + C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |

|  | bar | | | | | | l/min |
|---|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| B | 13,9 | 19,6 | 24 | 27,7 | 31 | 33,9 | |
| C | 15 | 21,2 | 26 | 30 | 33,6 | 36,8 | |
| B + C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |

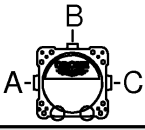


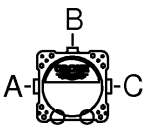
| A | B | C |
|---|---|---|
| X |  | X |
| X | X |  |
| X |  |  |
| X |  |  |
|  |  |  |

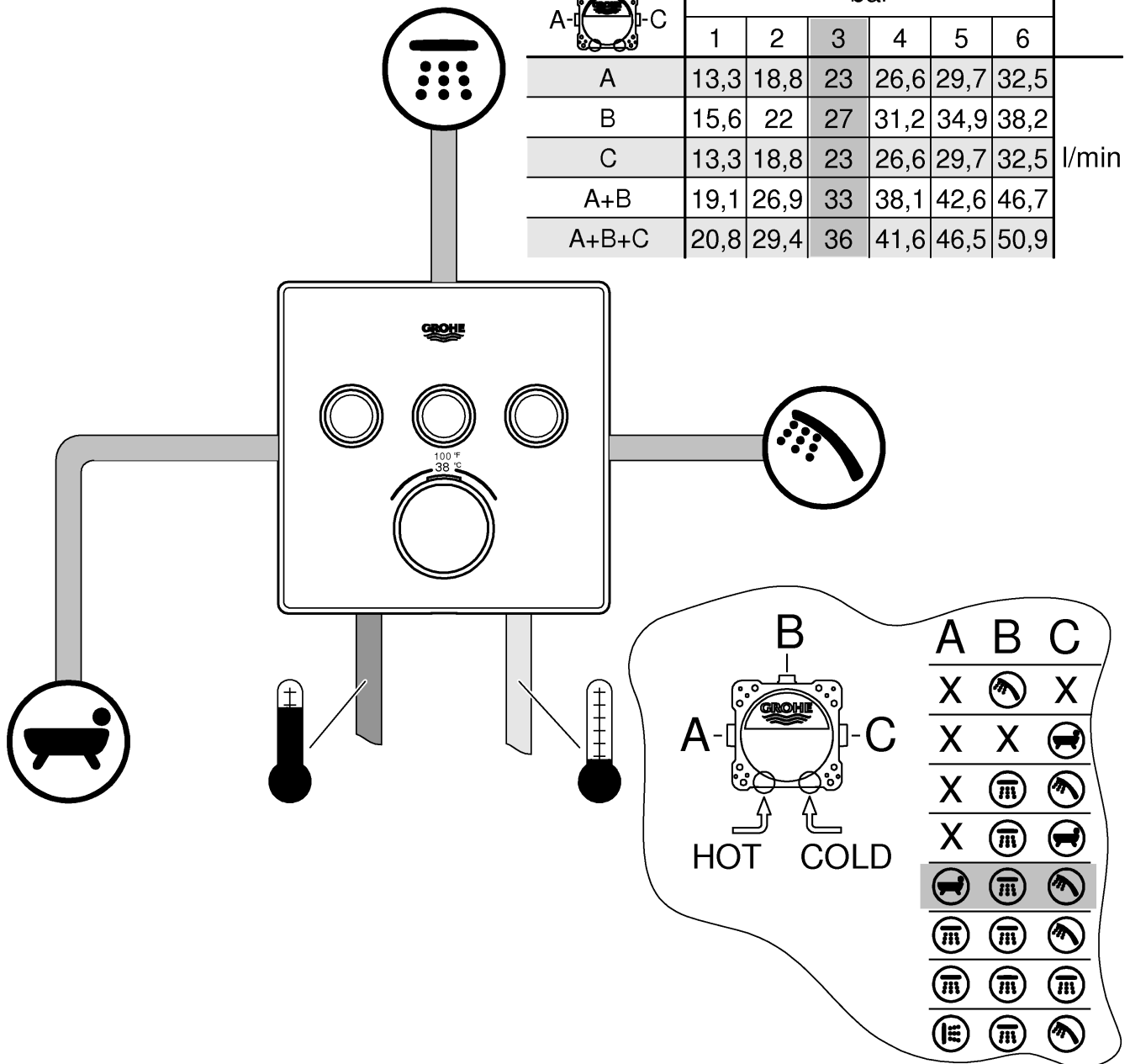
(A) X = 



Grohtherm SmartControl

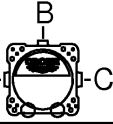
|  | psi | | | | | | gpm |
|---|------|-----|------|------|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| A | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 | |
| B | 4,1 | 5,8 | 7,1 | 8,2 | 9,2 | 10,1 | |
| C | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 | |
| A+B | 5 | 7,1 | 8,7 | 10,1 | 11,3 | 12,3 | |
| A+B+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 | |

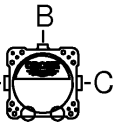
|  | bar | | | | | | l/min |
|---|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| A | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 | |
| B | 15,6 | 22 | 27 | 31,2 | 34,9 | 38,2 | |
| C | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 | |
| A+B | 19,1 | 26,9 | 33 | 38,1 | 42,6 | 46,7 | |
| A+B+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 | |

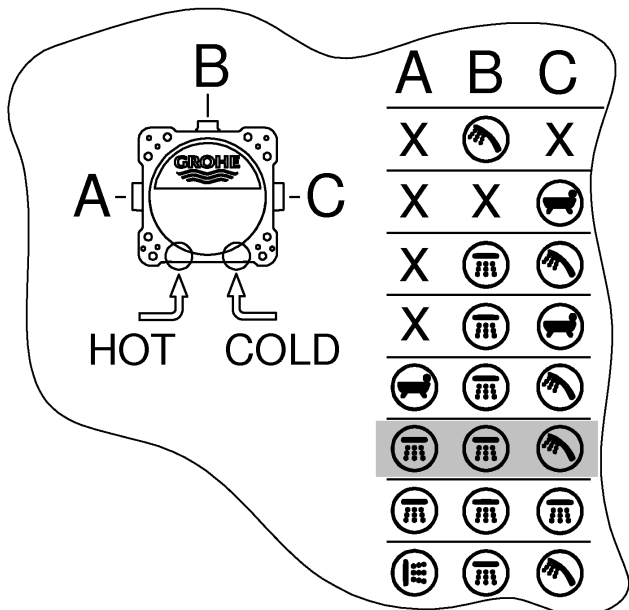
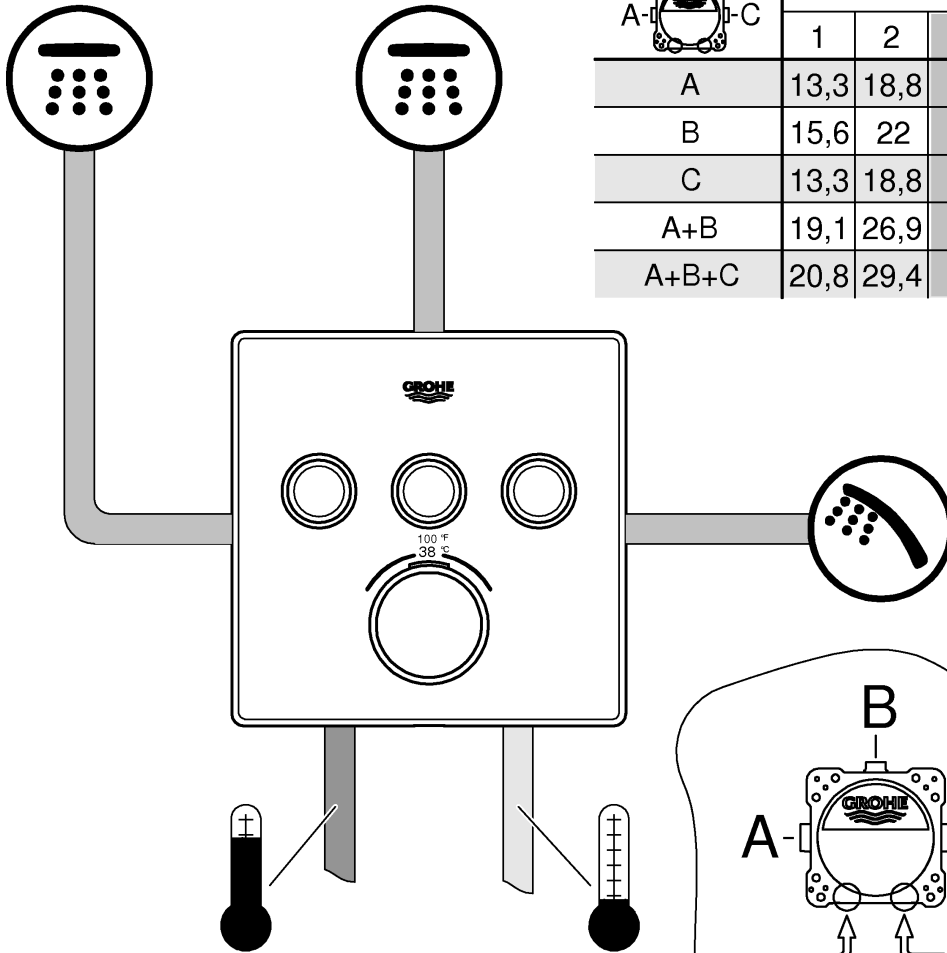




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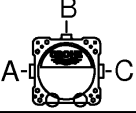
|  | psi | | | | | | gpm |
|---|------|-----|------|------|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| A | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 | |
| B | 4,1 | 5,8 | 7,1 | 8,2 | 9,2 | 10,1 | |
| C | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 | |
| A+B | 5 | 7,1 | 8,7 | 10,1 | 11,3 | 12,3 | |
| A+B+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 | |

|  | bar | | | | | | l/min |
|---|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| A | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 | |
| B | 15,6 | 22 | 27 | 31,2 | 34,9 | 38,2 | |
| C | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 | |
| A+B | 19,1 | 26,9 | 33 | 38,1 | 42,6 | 46,7 | |
| A+B+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 | |

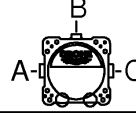




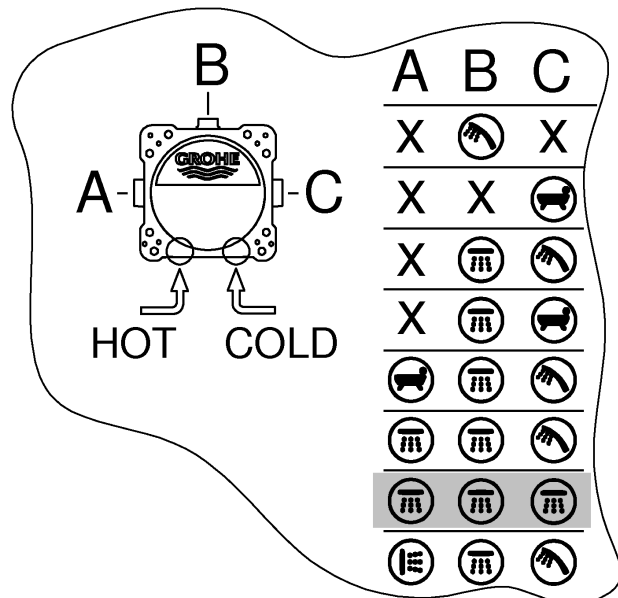
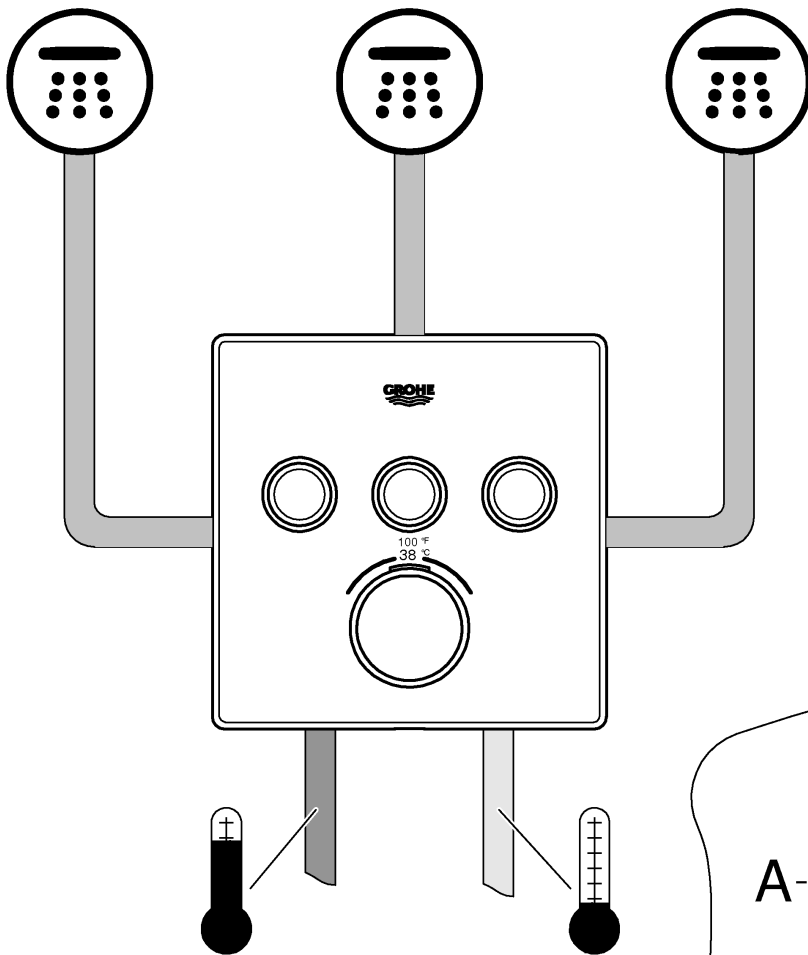
Grotherm SmartControl

|  | bar | | | | | |
|---|------|------|----|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| A | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 |
| B | 15,6 | 22 | 27 | 31,2 | 34,9 | 38,2 |
| C | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 |
| A+B | 19,1 | 26,9 | 33 | 38,1 | 42,6 | 46,7 |
| A+B+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 |

l/min

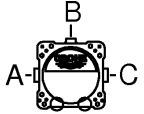
|  | psi | | | | | |
|---|------|-----|------|------|------|------|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 |
| A | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 |
| B | 4,1 | 5,8 | 7,1 | 8,2 | 9,2 | 10,1 |
| C | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 |
| A+B | 5 | 7,1 | 8,7 | 10,1 | 11,3 | 12,3 |
| A+B+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 |

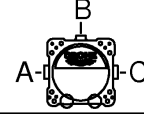
gpm

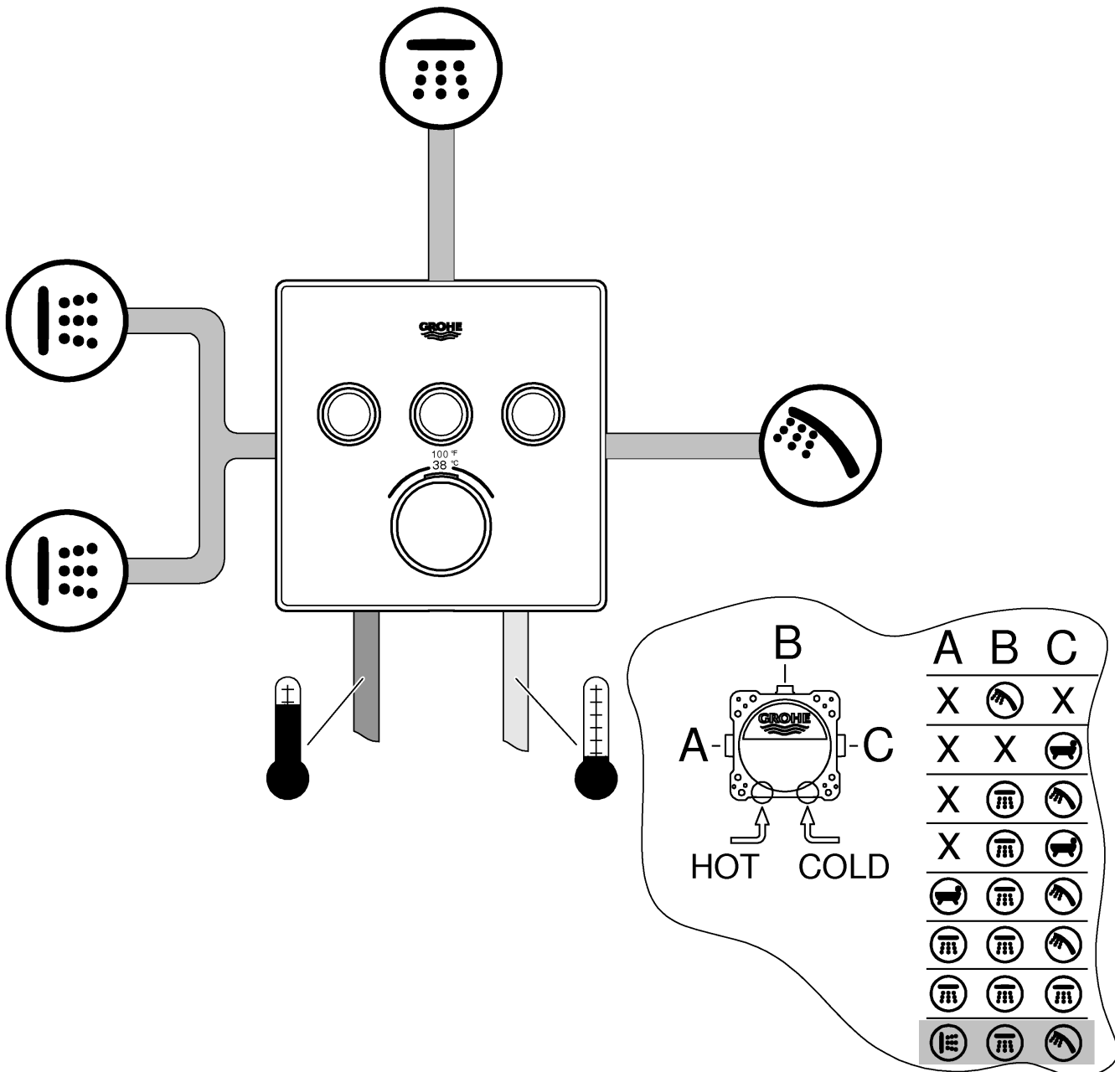




Grotherm SmartControl

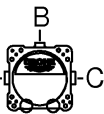
|  | bar | | | | | | l/min |
|---|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| A | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 | |
| B | 15,6 | 22 | 27 | 31,2 | 34,9 | 38,2 | |
| C | 13,3 | 18,8 | 23 | 26,6 | 29,7 | 32,5 | |
| A+B | 19,1 | 26,9 | 33 | 38,1 | 42,6 | 46,7 | |
| A+B+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 | |

|  | psi | | | | | | gpm |
|---|------|-----|------|------|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| A | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 | |
| B | 4,1 | 5,8 | 7,1 | 8,2 | 9,2 | 10,1 | |
| C | 3,5 | 5 | 6,1 | 7 | 7,8 | 8,6 | |
| A+B | 5 | 7,1 | 8,7 | 10,1 | 11,3 | 12,3 | |
| A+B+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 | |

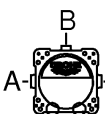




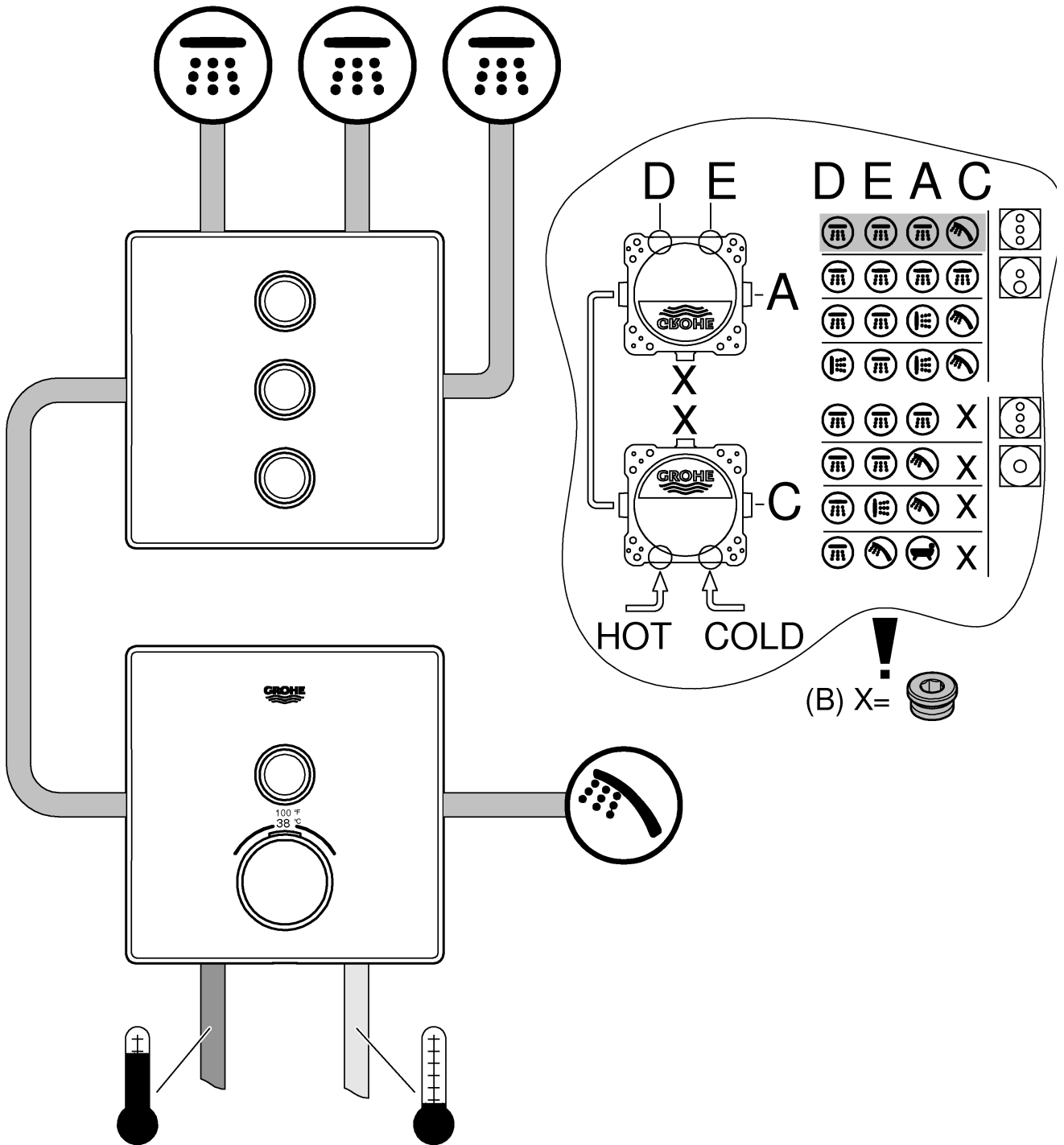
Grotherm SmartControl

|  | psi | | | | | |
|---|------|-----|------|-----|------|------|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 |
| D | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 |
| E | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 |
| A | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 |
| C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 |
| D+E+A | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 |
| D+E+A+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 |

gpm

|  | bar | | | | | |
|---|------|------|----|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| D | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 |
| E | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 |
| A | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 |
| C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 |
| D+E+A | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 |
| D+E+A+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 |

l/min

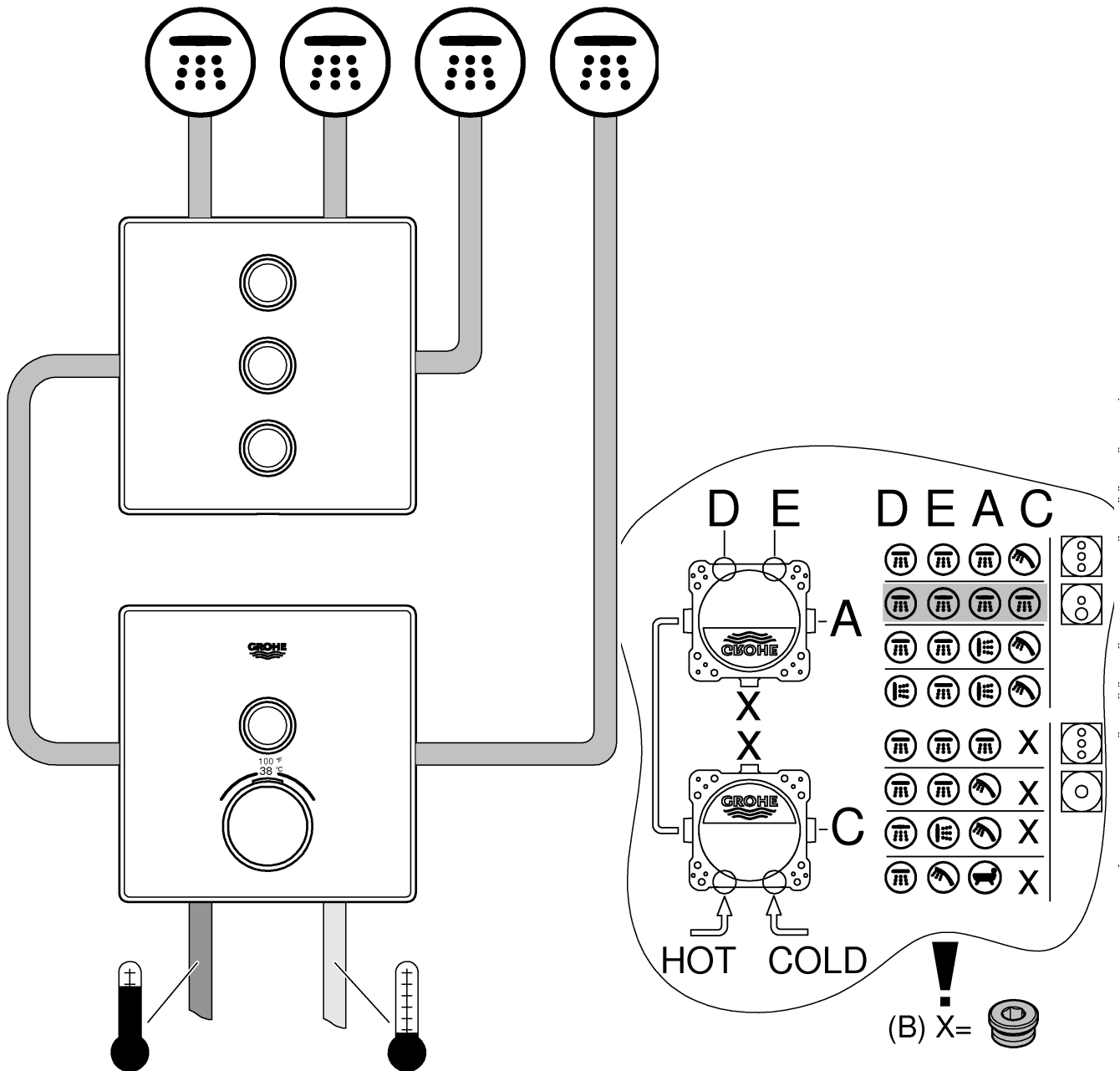




Grotherm SmartControl

| A-B-C | psi | | | | | | gpm |
|---------|------|-----|------|-----|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| D | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 | |
| E | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 | |
| A | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 | |
| C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |
| D+E+A | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |
| D+E+A+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 | |

| A-B-C | bar | | | | | | l/min |
|---------|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| D | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 | |
| E | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 | |
| A | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 | |
| C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |
| D+E+A | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |
| D+E+A+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 | |





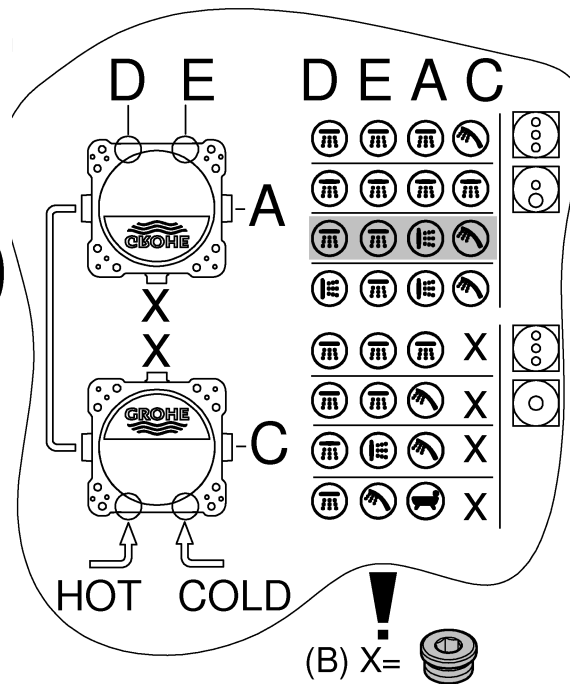
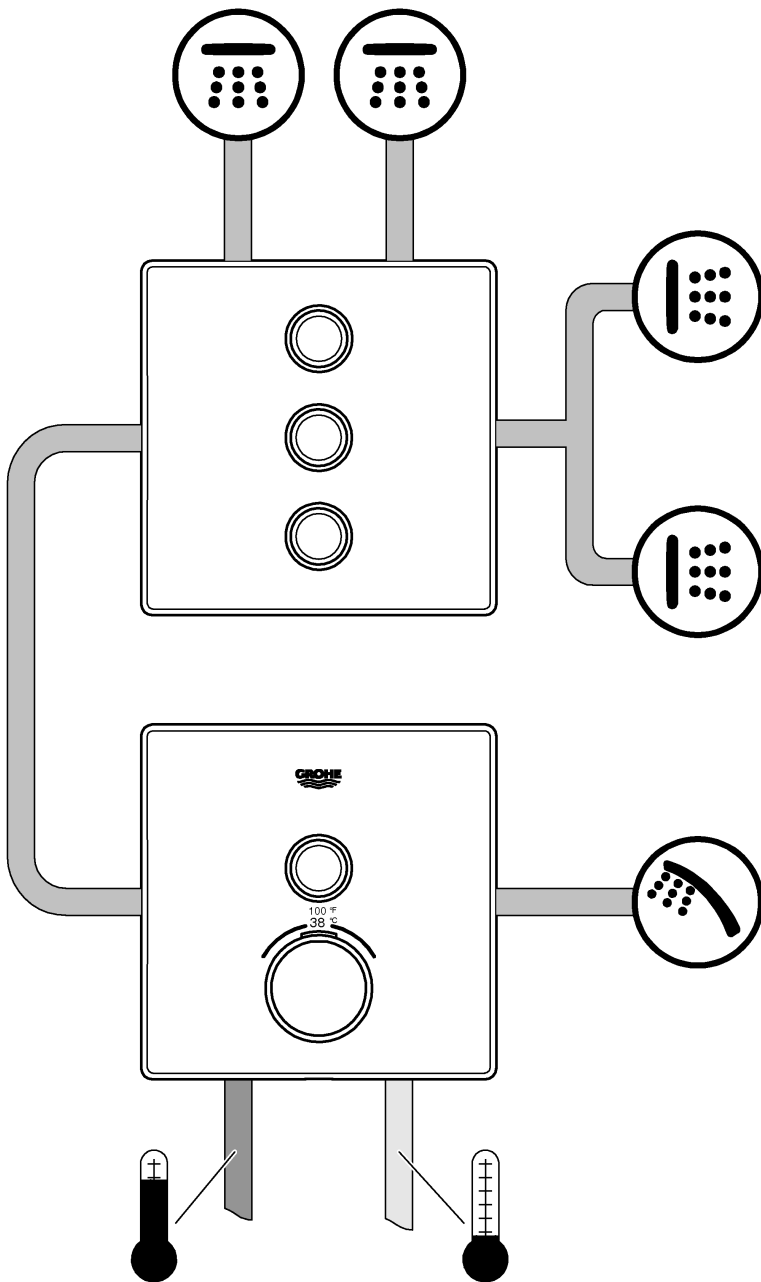
Grotherm SmartControl

| A-B-C | psi | | | | | |
|---------|------|-----|------|-----|------|------|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 |
| D | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 |
| E | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 |
| A | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 |
| C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 |
| D+E+A | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 |
| D+E+A+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 |

gpm

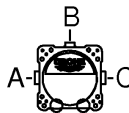
| A-B-C | bar | | | | | |
|---------|------|------|----|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| D | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 |
| E | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 |
| A | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 |
| C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 |
| D+E+A | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 |
| D+E+A+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 |

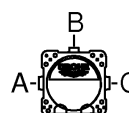
l/min

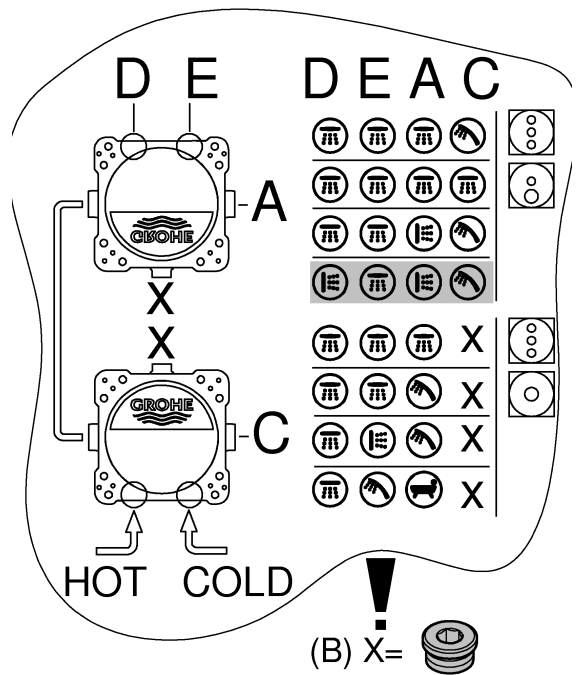
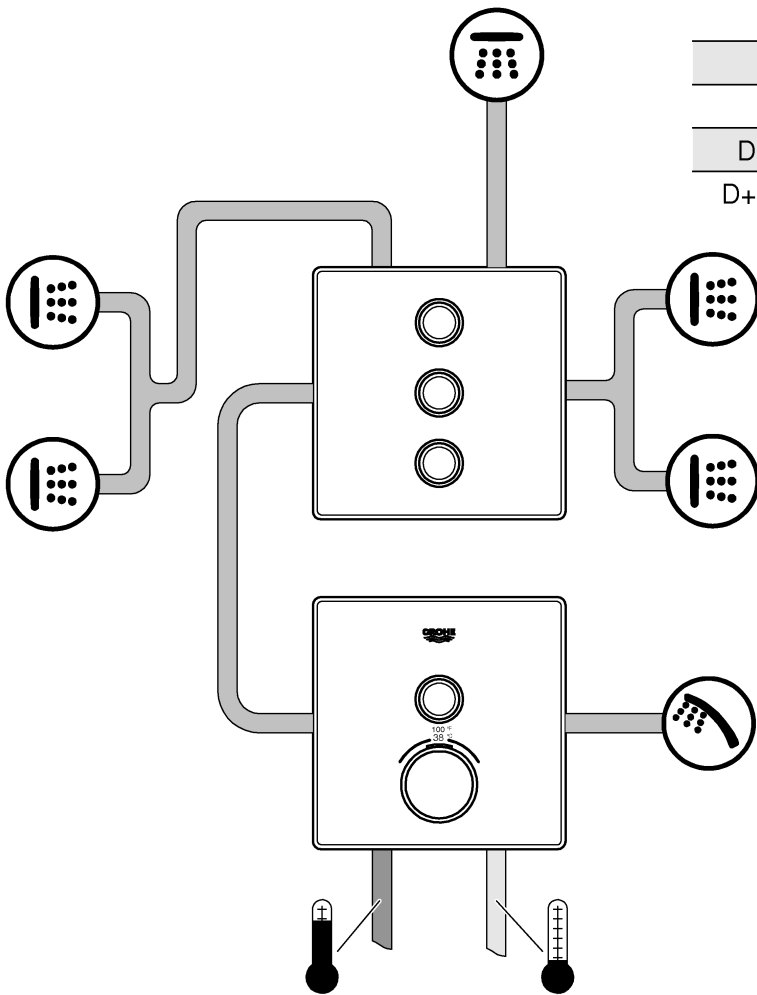




Grotherm SmartControl

|  | psi | | | | | | gpm |
|---|------|-----|------|-----|------|------|-----|
| | 14,5 | 29 | 43,5 | 58 | 72,5 | 87 | |
| D | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 | |
| E | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 | |
| A | 3,2 | 4,5 | 5,5 | 6,4 | 7,2 | 7,8 | |
| C | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |
| D+E+A | 4,4 | 6,3 | 7,7 | 8,8 | 9,9 | 10,8 | |
| D+E+A+C | 5,5 | 7,8 | 9,5 | 11 | 12,3 | 13,4 | |

|  | bar | | | | | | l/min |
|---|------|------|----|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| D | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 | |
| E | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 | |
| A | 12,1 | 17,1 | 21 | 24,2 | 27,1 | 29,7 | |
| C | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |
| D+E+A | 16,7 | 23,7 | 29 | 33,5 | 37,4 | 41 | |
| D+E+A+C | 20,8 | 29,4 | 36 | 41,6 | 46,5 | 50,9 | |







A series of 25 horizontal lines spaced evenly down the page, providing a template for handwriting practice.

Pure Freude an Wasser

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