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Air/water heat exchangers

SK 3378.300
SK 3378.380

Assembly and operating instructions

ENCLOSURES | POWER DISTRIBUTION | CLIMATE CONTROL | IT INFRASTRUCTURE | SOFTWARE & SERVICES

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Download options

Hinweis:
Die Montage-, Installations- und Bedienungsanleitung ist auch als Download unter www.rittal.de verfügbar.

Note:
The assembly and operating instructions are available for downloading from www.rittal.com.

Remarque :
La notice de montage, d'installation et d'emploi peut être téléchargée depuis le site www.rittal.fr.

Opmerking:
De montage-, installatie- en gebruikshandleiding is ook te downloaden via www.rittal.nl.

Obs:
Montage-, installations- och bruksanvisningen kan även laddas ner på www.rittal.se.

Nota:
Las instrucciones de montaje, instalación y puesta en marcha también están disponibles para su descarga en www.rittal.es.

Nota:
Le istruzioni di montaggio, installazione e uso possono anche essere scaricate dal sito www.rittal.it.

注記：
この取扱説明書 (組立・設置および運用マニュアル) は、www.rittal.co.jp からもダウンロードできます。

Warn- und Sicherheitshinweise

DE

Warnung!
Bitte beachten Sie die maximal zulässigen Hebegewichte für Personen. Ggf. ist eine Hebevorrichtung zu verwenden.
Arbeiten an elektrischen Anlagen oder Betriebsmitteln dürfen nur von einer Elektrofachkraft oder von unterwiesenem Personal unter Leitung und Aufsicht einer Elektrofachkraft den elektrotechnischen Regeln entsprechend vorgenommen werden.
Der Luft/Wasser-Wärmetauscher darf erst nach Lesen dieser Informationen von den o. g. Personen angeschlossen werden!
Es darf nur spannungsisoliertes Werkzeug benutzt werden.
Die Anschlussvorschriften des zuständigen Stromversorgungsunternehmens sind zu beachten.
Der Luft/Wasser-Wärmetauscher muss über eine allpolige Trennvorrichtung nach Überspannungskategorie III (IEC 61 058-1) an das Netz angeschlossen werden.
Der Luft/Wasser-Wärmetauscher ist erst nach Trennung von allen Spannungsquellen spannungsfrei!
Schalten Sie den Luft/Wasser-Wärmetauscher vor dem Öffnen der Elektro-Anschlussbox und vor Arbeiten am Wasserkreislauf spannungsfrei und sichern Sie ihn gegen versehentliches Wiedereinschalten.
Die Spannungszuschaltung darf erst erfolgen, wenn das Abdeckblech der Elektro-Anschlussbox ordnungsgemäß verschraubt ist.

Vorsicht!
Verwenden Sie niemals brennbare Flüssigkeiten zur Reinigung des Luft/Wasser-Wärmetauschers.
An nicht vollständig entgrateten Bohrungen und Ausschnitten besteht Schnittgefahr, insbesondere bei der Montage des Luft/Wasser-Wärmetauschers.

Safety instructions and warnings

EN

Warning!
Please note the maximum weights that may be lifted by individuals. It may be necessary to use lifting gear.
Work on electrical systems or equipment may only be carried out by an electrician or by trained personnel under the guidance and supervision of an electrician. All work must be carried out in accordance with electrical engineering regulations.
The air/water heat exchanger may only be connected after the above-mentioned personnel have read this information!
Use only insulated tools.
Follow the connection regulations of the appropriate electrical supply company.
The air/water heat exchanger must be connected to the mains via an all-pin isolating device to overvoltage category III (IEC 61 058-1).
The air/water heat exchanger is not de-energised until all of the voltage sources have been disconnected!
Switch off the power supply to the air/water heat exchanger before opening the electrical connection box and before working on the water circuit, and take suitable precautions against it being accidentally switched on again.
The power supply must not be switched back on until the cover plate of the electrical connection box has been properly screw-fastened into position.

Caution!
Never use flammable liquids for cleaning the air/water heat exchanger.
There is a risk of cutting injury around all drill holes and cut-outs which have not been fully deburred, especially during mounting of the air/water heat exchanger.

Consignes de sécurité

FR

Avertissement !
Veuillez tenir compte du poids de levage maximal autorisé pour les personnes et le cas échéant utilisez un appareil de levage.
Seuls les électriciens spécialisés ou les personnes dûment instruites opérant sous la direction et la surveillance d'un électricien spécialisé, sont autorisés à pratiquer des interventions sur les installations ou appareils électriques, conformément aux règles de l'électrotechnique.
Les personnes mentionnées ci-dessus ne sont autorisées à raccorder l'échangeur thermique air/eau qu'après avoir lu ces informations !
Utiliser exclusivement des outils isolés.
Respecter les directives de raccordement du fournisseur d'électricité compétent.
L'échangeur thermique air/eau doit être raccordé au réseau par l'intermédiaire d'un dispositif de coupure monophasé de catégorie III de surtension (CEI 61 058-1).
L'échangeur thermique air/eau est hors tension uniquement après avoir débranché toutes les sources de tension !
Mettre l'échangeur thermique air/eau hors tension avant d'ouvrir le boîtier de raccordement électrique ou de travailler sur le circuit d'eau et prévenir toute remise en circuit inopinée.
La mise sous tension doit avoir lieu uniquement lorsque la face avant en tôle du boîtier de raccordement électrique est correctement vissée.

Prudence !
Ne jamais utiliser de liquides inflammables pour le nettoyage de l'échangeur thermique air/eau.
Il y a risque de coupures au niveau des perçages et découpes qui ne sont pas complètement ébavurés, en particulier lors du montage de l'échangeur thermique air/eau.

Waarschuwingen en veiligheidsinstructies

NL

Waarschuwing!
Neem het maximaal toegestane tilgewicht voor personen in acht. Gebruik eventueel een hefwerktuig.
Werkzaamheden aan elektrische installaties of bedrijfsmiddelen mogen uitsluitend volgens de elektrotechnische voorschriften worden uitgevoerd door een elektricien of door geïnstrueerd personeel onder leiding en toezicht van een elektricien.
De lucht/water-warmtewisselaar mag pas na het lezen van deze informatie door bovengenoemde personen worden aangesloten!
Er mogen uitsluitend geïsoleerde gereedschappen worden gebruikt.
Neem de aansluitvoorschriften van het desbetreffende energiebedrijf in acht.
De lucht/water-warmtewisselaar dient via een meerpolige scheidingsinrichting conform overspanningscategorie III (IEC 61058-1) op het stroomnet aan te worden gesloten.
De lucht/water-warmtewisselaar is pas spanningsvrij wanneer het is losgekoppeld van alle spanningsbronnen.
Schakel de lucht/water-warmtewisselaar spanningsvrij vóór het openen van de elektrische aansluitingsbox en vóór werkzaamheden aan het watercircuit. Zie er vervolgens op toe dat de lucht/water-warmtewisselaar niet onopzettelijk kan worden ingeschakeld.
Schakel de spanning pas in wanneer de afdekplaat van de elektrische aansluiting box correct is vastgeschroefd.

Voorzichtig!
Gebruik geen brandbare vloeistoffen voor het reinigen van de lucht/water-warmtewisselaar.
Bij niet volledig ontbraamde boringen en uitsparingen bestaat een risico op snijwonden, met name bij de montage van de lucht/water-warmtewisselaar.

Varnings- och säkerhetsanvisningar

SE

Varning!
Observera de maximalt tillåtna lyftvikterna för personer. Vid behov ska en lyftanordning användas.
Arbeten på elektriska anläggningar eller utrustning får endast utföras av en behörig elektriker eller av fackmässigt kunnig personal under ledning och uppsikt av en elektriker, och ska ske i enlighet med eltekniska regler.
Luft/vatten värmeväxlaren får inte anslutas förrän denna information lästs igenom av ovannämnda personer!
Endast spänningsisolerade verktyg får användas.
Anslutningsföreskrifterna från det ansvariga elförsörjningsföretaget måste följas.
Luft/vatten värmeväxlaren måste anslutas till elnätet med en allpolig brytare som motsvarar överspänningskategori III (IEC 61058-1).
Luft/vatten värmeväxlaren är strömlös först när alla spänningskällor kopplats ur!
Koppla ifrån spänningen till luft/vatten värmeväxlaren innan den elektriska kopplingsdosan öppnas och före arbeten på vattenkretsloppet, och säkra den så att den inte kan kopplas till av misstag.
Spänningen får inte kopplas till igen förrän täckplåten på den elektriska kopplingsdosan är ordentligt fastskruvad.

Varning!
Använd aldrig brännbara vätskor för rengöring av luft/vatten värmeväxlaren.
Borrhål och utskärningar som inte slipats ordentligt kan orsaka skärskador, särskilt vid montage av luft/vatten värmeväxlaren.

Avvertenze di sicurezza

IT

Attenzione!
Prestare attenzione ai carichi massimi consentiti per le persone. Se necessario, utilizzare un dispositivo di sollevamento.
I lavori sugli impianti elettrici o con materiale elettrico devono essere eseguiti esclusivamente da parte di un tecnico specializzato in elettrotecnica o da personale competente sotto la guida e la supervisione di un tecnico specializzato in elettrotecnica nel rispetto delle regole in materia di elettrotecnica.
Lo scambiatore di calore aria/acqua deve essere collegato soltanto previa lettura delle presenti informazioni da parte del personale suddetto.
Utilizzare esclusivamente attrezzi isolati elettricamente.
Osservare le prescrizioni relative al collegamento dell'azienda fornitrice di elettricità competente.
Lo scambiatore di calore aria/acqua deve essere collegato alla rete mediante un dispositivo di separazione onnipolare conforme alla categoria di sovratensione III (IEC 61058-1).
Lo scambiatore di calore aria/acqua è privo di tensione solo dopo l'avvenuto scollegamento di tutte le fonti di tensione.
Scollegare lo scambiatore di calore aria/acqua dall'alimentazione prima di aprire il quadro elettrico e di eseguire lavori sul circuito dell'acqua, assicurandosi anche che la tensione non possa essere ripristinata accidentalmente.
Collegare di nuovo l'apparecchio all'alimentazione solo dopo aver avvitato correttamente il coperchio in lamiera del quadro elettrico.

Attenzione!
Non utilizzare liquidi infiammabili per la pulizia dello scambiatore di calore aria/acqua.
I fori e le aperture non levigati completamente possono causare lesioni da taglio, in particolare durante il montaggio dello scambiatore di calore aria/acqua.

Safety instructions and warnings

Indicaciones de alerta y seguridad

ES

¡Alerta!
Rogamos tenga en cuenta el peso máximo permitido que puede levantar una persona.
En caso necesario deberá utilizarse un dispositivo elevador.
Los trabajos en una instalación o en componentes eléctricos deben ser realizados sólo por personal técnico o por personal autorizado bajo la supervisión de un técnico.
¡La conexión del intercambiador de calor aire/agua se realizará sólo tras la lectura de esta documentación por parte del personal descrito anteriormente!
Deben utilizarse únicamente herramientas con aislamiento eléctrico.
Deben tenerse en cuenta las normas de conexión de la compañía eléctrica competente.
El intercambiador de calor aire/agua debe conectarse a la red a través de un relé de ruptura omnipolar según categoría de sobretensión III (IEC 61058-1).
¡El intercambiador de calor aire/agua sólo se encuentra libre de tensión tras la desconexión de todas las fuentes de tensión!
Desconecte el intercambiador de la tensión y protéjalo contra una nueva puesta en marcha involuntaria antes de abrir la caja de conexiones eléctricas y de realizar trabajos en el circuito de agua.
Sólo cuando la chapa cubierta de la caja de conexiones se encuentre de nuevo debidamente atornillada, podrá volver a conectar el aparato a la tensión.
¡Atención!
No utilice nunca líquidos inflamables para realizar la limpieza del intercambiador de calor.
En taladros y escotaduras mal desbarbadas existe un peligro de corte, especialmente durante el montaje del intercambiador.

Advarsels- og sikkerhedsanvisninger

DK

Advarsel!
Overhold den maksimalt tilladte løftevægt for personer. Brug en løfteanordning, hvis vægten overskrider den tilladte løftevægt.
Arbejde på elektriske anlæg eller driftsmidler må kun udføres af en autoriseret elinstallatør eller personale, der har modtaget undervisning heri, og som er under opsyn af en autoriseret elinstallatør, der sikrer overholdelse af de gældende elektrotekniske regler.
Disse oplysninger skal læses af ovenstående personer, før luft/vand-varmeveksleren tilsluttes.
Der må kun bruges spændingsfrit værktøj.
Følg altid tilslutningsvejledningen fra det ansvarlige forsyningsselvskab.
Luft/vand-varmeveksleren skal sluttes til netspænding via en flerpolet isolator jf. overspændingskategori III (IEC 61058-1).
Luft/vand-varmeveksleren er først spændingsfri, når alle spændingskilder er frakoblet!
Luft/vand-varmeveksleren skal kobles spændingsfri og sikres mod utilsigtet genindkobling, inden el-tilslutningsskabet åbnes, og inden der foretages arbejde på vandkredsløbet.
Spændingen må først tilkobles igen, når afdækningen til el-tilslutningsskabet er skruet korrekt fast.
OBS!
Der må ikke anvendes brandbare væsker til rengøring af luft/vand-varmeveksleren.
Der er risiko for at skære sig ved ikke fuldt afgrattede boringer eller udskæringer, særligt i forbindelse med monteringen af luft/vand-varmeveksleren.

Avisos e instruções de segurança

PT

Aviso!
Por favor, considerar o peso máximo permitido a ser levantado por uma pessoa.
Caso necessário, utilizar equipamento adequado.
O trabalho efetuado em sistemas e equipamentos elétricos deve ser feito por eletricistas autorizados e especializados ou técnicos trabalhando sob supervisão. O trabalho deve ser desenvolvido de acordo com as normas e regulamentações eletrotécnicas.
O trocador de calor ar/água apenas deverá ser instalado pelas pessoas mencionadas acima depois de terem lido estas informações!
Utilizar apenas ferramentas com isolamento de proteção.
Seguir as orientações da respectiva empresa de fornecimento de energia elétrica.
O trocador de calor ar/água deve ser conectado à rede de energia elétrica por meio de um dispositivo de isolamento da categoria de sobretensão III (IEC 61058-1).
O trocador de calor ar/água ficará sob tensão até ser desligado de todas as fontes de energia!
Antes de abrir a caixa de conexão elétrica e antes de realizar qualquer serviço no circuito de água, desligar a alimentação de energia do trocador de calor ar/água e protegê-lo contra a religação acidental.
Somente religar a alimentação de energia depois que a chapa de cobertura da caixa de conexão tiver sido devidamente parafusada.
Cuidado!
Nunca utilizar líquidos inflamáveis para efetuar a limpeza do trocador de calor ar/água.
Se as rebarbas dos furos e recortes não tiverem sido completamente eliminadas, há risco de ferimento, sobretudo durante a instalação do trocador de calor ar/água.

Varoitukset ja turvallisuusohjeet

FI

Varoitus!
Huomioi sallittu enimmäisnostopaino. Käytä tarvittaessa nostolaitetta.
Sähkötöitä saavat suorittaa vain koulutetut sähköalan ammattilaiset tai perehdytetyt työntekijät sähköalan ammattilaisen johdolla ja valvonnassa sääntöjen mukaisesti.
Yllä mainitut henkilöt saavat kytkeä ilma-vesilämmönvaihtimeen virran vasta luettuaan nämä ohjeet.
Käytä vain jännite-eristettyjä työkaluja.
Huomioi energiayhtiön liitäntäohjeet.
Ilma-vesilämmönvaihtimen saa liittää verkkoon moninapaisen erotuslaitteen kautta jänniteluokassa III (IEC 61058-1).
Ilma-vesilämmönvaihdin on jännitteetön vasta, kun kaikki jännitelähteet on kytketty irti.
Katkaise ilma-vesilämmönvaihtimen jännite ennen sähköliitäntälaatikon avaamista ja ennen vesikierrolle tehtäviä töitä ja estä tahaton uudelleenkytkentä.
Kytke jännite päälle vasta, kun sähköliitäntälaatikon peitelevy on ruuvattu kiinni asianmukaisesti.
Varo!
Älä käytä ilma-vesilämmönvaihtimen puhdistukseen palavia nesteitä.
Mikäli porauksista ja aukoista ei ole poistettu pursetta täydellisesti, on olemassa leikkautumisvaara erityisesti ilma-vesilämmönvaihdinta asennettaessa.

Rabhadh agus nótaí sábháilteachta

IE

Rabhadh!
Tabhair faoi deara na huasmheáchain is ceadmhach do dhuine amháin a chrochadh. Úsáid gairis ardaithe atá oiriúnach, más gá.
Níl cead ach ag leictreoir nó pearsanra oilte atá faoi threoir agus faoi mhaoirseacht leictreora obair a dhéanamh ar chórais nó ar threalamh leictreach. Ní mór an obair ar fad a dhéanamh de réir rialacháin na hinnealtóireachta leictrí.
Ní mór go mbeadh an fhaisnéis seo léite ag an bpearsanra thuasluaite sula ndéantar an teasmhalartóir aeir/uisce a nascadh!
Ná húsáid ach uirlisí atá inslithe.
Ní mór rialacháin nasctha na cuideachta cuí a sholáthraíonn an leictreachas a leanúint.
Ní mór an teasmhalartóir aeir/uisce a nascadh leis an sruth trí ghléas aonraíoch le catagóir róvoltais III (IEC 61058-1).
Níl an teasmhalartóir aeir/uisce díchumachtaithe go dtí go mbíonn sé díscortha ó gach foinse voltais!
Múch an soláthar cumhachta chuig an teasmhalartóir aeir/uisce sula n-osclaítear an nascbhosca leictreach agus sula n-oibrítear ar an gciorcad uisce, agus déan an méid is gá lena chinntiú nach lasfar é arís de thimpiste.
Tá cosc ar an soláthar cumhachta a chasadh air arís sula mbeidh an pláta cumhdaigh den nascbhosca leictreach scriúáilte agus daingnithe san áit cheart.
Aire!
Ná húsáid leachtanna inlasta riamh chun an teasmhalartóir aeir/uisce a ghlanadh.
Tá baol gortaithe ó ghearradh timpeall ar na poill druileála agus na gearrthóga ar fad nach bhfuil dí-bhurrtha go hiomlán, go háirithe le linn don teasmhalartóir aeir/uisce a bheith á chur suas.

Upozorenje i sigurnosne napomene

HR

Upozorenje!
Obratite pažnju na najveću dopuštenu masu koju smije podizati jedna osoba. Ako je potrebno, preporuča se upotreba opreme za podizanje i premještanje.
Rad na električnim sustavima ili opremi smije provoditi isključivo električar ili osoba obučena za rad sa elektronikom pod nadzorom električara. Svi radovi moraju se provoditi u skladu s propisima elektroničke struke.
Izmjenjivač topline zrak/voda smije se spojiti u sustav tek nakon što osobe definirane ranije u ovom tekstu pročitaju ove informacije.
Koristite samo alat koji je električki izoliran.
Potrebno je pridržavati se pravila o priključivanju odgovarajućeg napona isporučitelja električne energije.
Izmjenjivač topline zrak/voda mora se spojiti s mrežom putem separatora sa svim polovima u skladu s prenaponskom kategorijom III (IEC 61058-1).
Izmjenjivač topline zrak/voda bit će pod naponom dok ga ne odspojite od svih izvora napajanja.
Isključite napajanje izmjenjivača topline zrak/voda prije nego što otvorite strujnu kutiju i prije početka rada na hidrološkom ciklusu te ga osigurajte od slučajnog ponovnog spajanja.
Uređaj ponovno uključite tek nakon što ste pravilno vijcima pričvrstili poklopac strujne kutije.
Oprez!
Nikada ne koristite zapaljive tekućine za čišćenje.
Postoji opasnost od ozljeda oko svih rezanih i bušenih otvora koji nisu površinski obrađeni, naročito tijekom montaže izmjenjivača topline zrak/voda.

Twissijiet u Sigurtà

MT

Twissija!
Jekk jogħġbok innota l-piżijiet ta' rfigħ massimi permessibbli għan-nies. Jekk ikun hemm bżonn, jeħtieġ li jintuża apparat tal-irfigħ.
Xogħol fuq sistemi jew apparat tal-elettriku għandu jsir skont ir-regolamenti dwar l-elettriku taħt is-supervizjoni ta' elektrixin ikkwalifikat u minn persunal imħarreġ biss.
L-iskambjatur tas-sħana tal-arja/ilma għandu jitqabbad biss wara li tinqara din l-informazzjoni mill-persuni ta' hawn fuq!
Uża biss għodod iżolati.
Għandhom jiġu osservati r-rekwiżiti tat-tqabbid tal-kumpanija tal-provvista tal-elettriku lokali.
L-iskambjatur tas-sħana tal-arja/ilma għandu jitqabbad biss man-netwerk permezz ta' apparat interruttur skont il-kategorija tal-vultaġġ eċċessiv III (IEC 61058-1)
L-iskambjatur tas-sħana tal-arja/ilma ma jkollux elettriku għaddej minnu wara s-separazzjoni minn mas-sorsi kollha tal-elettriku.
Qabbad l-iskambjatur tas-sħana tal-arja/ilma qabel ma tiftaħ il-kaxxa tal-konnessjoni tal-elettriku u qabel ma tibda taħdem fuq iċ-ċiklu tal-ilma kun sigur li ma jkollux elettriku u kun sigur kontra it-tqabbid mill-ġdid bi żball.
Qabbad il-kurrent wara li tara li l-folja tal-kaxxa tal-konnessjoni elettrika hija bboltjata kif suppost.
Attenzjoni!
Tuża qatt likwidi li jaqbdu biex tnaddaf l-iskambjatur tas-sħana tal-arja/ilma.
Hemm il-periklu li wieħed iweġġa' mat-toqob u mal-qatgħat mhux protetti tal-iskambjatur tas-sħana tal-arja/ilma, b'mod partikolari waqt l-assemblaġġ tiegħu.

Ostrzeżenia i wskazówki dotyczące bezpieczeństwa

PL

Uwaga!
Prosimy o nieprzekraczanie maksymalnych dopuszczalnych ciężarów podnoszonych przez ludzi. W razie potrzeby należy zastosować urządzenie podnośnikowe.
Prace przy urządzeniach elektrycznych lub środkach eksploatacyjnych mogą być wykonywane wyłącznie przez elektryków lub przez przeszkolony personel pod kierownictwem elektryków zgodnie z zasadami elektrotechniki.
Urządzenie może być podłączone dopiero po przeczytaniu niniejszych informacji przez w/w osoby!
Stosować wyłącznie narzędzia posiadające stosowną izolację.
Przestrzegać przepisów odpowiedniego Zakładu Energetycznego.
Wymiennik ciepła powietrze/woda należy podłączyć do sieci za pomocą urządzenia rozdzielczego na wszystkich biegunach kategorii III wg IEC 61058-1.
Urządzenie nie jest pod napięciem dopiero po odłączeniu wszystkich źródeł zasilania elektrycznego!
Przed otwarciem skrzynki elektrycznej i przed pracami przy obiegu wody odłączyć wymiennik ciepła od napięcia i zabezpieczyć przed ponownym przypadkowym włączeniem.
Napięcie można podłączyć ponownie dopiero po prawidłowym przykręceniu pokrywy skrzynki elektrycznej.
Ostrożnie!
Nie stosować do czyszczenia łatwopalnych cieczy.
Niecałkowicie wygładzone otwory i wycięcia grożą skaleczeniem, szczególnie podczas montażu urządzenia.

Výstražné a bezpečnostní pokyny

CZ

Výstraha!
Dodržujte maximální přípustné osobní limity pro zvedání břemen. V případě potřeby použijte zdvihací zařízení.
Veškeré práce na elektrických zařízeních nebo vybavení smí provádět pouze certifikovaný odborník v oboru elektro nebo zaškolený personál.
Výměník tepla vzduch/voda smí připojovat výše uvedené osoby pouze po přečtení těchto pokynů.
Smí se používat pouze odizolované nářadí.
Dodržujte předpisy příslušného dodavatele elektrické energie pro připojení elektrického zařízení.
Výměník tepla vzduch/voda musí být připojen k napájecí síti pomocí odpínače všech pólů dle kategorie přepětí III (IEC 61058-1).
Výměník tepla vzduch/voda je bez napětí teprve po odpojení zdroje napájení.
Před otevřením rozvodnice a před prací na vodním okruhu odpojte výměník tepla vzduch/voda od napětí a zajistěte jej proti neúmyslnému zapnutí.
Napětí připojte až po řádném přišroubování krycího plechu na rozvodnici.
Pozor!
Nepoužívejte k čištění výměníku tepla vzduch/voda žádné hořlavé kapaliny.
U otvorů a výřezů s nekompletně odstraněnými otřepy existuje nebezpečí pořezání, zejména při montáži výměníku tepla vzduch/voda.

Предупреждения и инструкции за безопасност

BG

Предупреждение!
Спазвайте максимално допустимата товароносимост на човек. Ако се налага, използвайте подемно устройство.
Свързването към електрическата мрежа и другите съпътстващи дейности трябва да се извършват само от професионален електротехник или от инструктиран персонал под ръководството и надзора на професионалния електротехник в съответствие с правилата за безопасност.
Въздушно-водният топлообменник може да се свързва към захранването от някое от гореспоменатите лица едва след като бъде прочетена тази информация!
Разрешено е използването само на изолирани инструменти.
Трябва да се спазват предписанията за свързване към захранването на компетентното електроснабдително дружество.
Въздушно-водният топлообменник трябва да се свърже към захранващата мрежа чрез многополюсен прекъсвач в условията на свръхнапрежение категория III (IEC 61058-1).
Въздушно-водният топлообменник остава под напрежение, докато не бъде изключен напълно от всички източници на напрежение!
Преди отваряне на клемната кутия и работа по водния кръг изключете въздушно-водния топлообменник от захранването с напрежение и го осигурете срещу неволно повторно включване.
Включете го към захранването с напрежение едва след като сте завинтили правилно покриващия панел на клемната кутия.
Внимание!
Никога не използвайте запалими течности за почистване на въздушно-водния топлообменник.
При недобре почистени ръбове на пробитите отвори и прорези съществува опасност от порязване, особено при монтажа на въздушно-водния топлообменник.

Προειδοποιήσεις και υποδείξεις ασφαλείας

GR

Προειδοποίηση!
Παρακαλούμε τηρείτε το μέγιστο επιτρεπόμενο βάρος που μπορεί να αρθεί από ένα άτομο. Χρησιμοποιήστε κατάλληλες συσκευές ανύψωσης, εάν είναι απαραίτητο.
Οι εργασίες σε ηλεκτρολογικές εγκαταστάσεις ή εξοπλισμό επιτρέπεται να εκτελούνται μόνο από ηλεκτρολόγο ή από ειδικά εκπαιδευμένο προσωπικό καθοδηγούμενο και εποπτευόμενο από έναν ηλεκτρολόγο και σύμφωνα με τους ισχύοντες κανονισμούς.
Ο εναλλάκτης θερμότητας αέρα/νερού επιτρέπεται να συνδεθεί από τα προαναφερθέντα άτομα μόνο εφόσον έχουν διαβάσει αυτές τις πληροφορίες!
Χρησιμοποιείτε μόνο ηλεκτρικά μονωμένα εργαλεία.
Πρέπει να τηρούνται οι κανονισμοί σύνδεσης της σχετικής εταιρείας παροχής ηλεκτρικού ρεύματος.
Ο εναλλάκτης θερμότητας αέρα/νερού πρέπει να συνδεθεί στο ηλεκτρικό δίκτυο μέσω διάταξης διακοπής όλων των πόλων της κατηγορίας υπέρτασης III (IEC 61058-1).
Ο εναλλάκτης θερμότητας αέρα/νερού παραμένει υπό τάση έως ότου αποσυνδεθεί από όλες τις πηγές τάσης!
Πριν ανοίξετε το κυτίο ηλεκτρικών συνδέσεων και πριν εκτελέσετε εργασίες στο κύκλωμα νερού, αποσυνδέστε τον εναλλάκτη θερμότητας αέρα/νερού από την ηλεκτρική τάση και ασφαλίστε τον από αθέλητη επανενεργοποίηση.
Συνδέστε πάλι την τροφοδοσία τάσης όταν βιδωθεί ξανά με τον προβλεπόμενο τρόπο το κάλυμμα του κυτίου ηλεκτρικών συνδέσεων.
Προσοχή!
Μην χρησιμοποιείτε ποτέ εύφλεκτα υγρά για τον καθαρισμό του εναλλάκτη θερμότητας αέρα/νερού.
Υφίσταται κίνδυνος τραυματισμού από γρέζια στα σημεία των οπών και των τομών, ειδικά κατά την τοποθέτηση του εναλλάκτη θερμότητας αέρα-νερού

Instrucțiuni de avertizare și siguranță

RO

Avertizare!
Respectați greutățile de ridicare maxim admise pentru o persoană. Dacă este necesar, utilizați dispozitive de ridicare.
Lucrările la instalațiile sau echipamentele electrice trebuie să fie făcute în mod corespunzător, numai de către un electrician calificat sau de personal instruit, sub comanda și supravegherea unui electrician calificat, în concordanță cu reglementările electrotehnice.
Schimbătorul de căldură aer/apă trebuie să fie conectat numai după citirea acestor informații, de către persoanele mai sus menționate!
Pot fi utilizate numai scule izolate electric.
Trebuie respectate cerințele de racordare ale companiei locale de alimentare cu energie.
Schimbătorul de căldură aer/apă trebuie să fie conectat la rețea prin intermediul unui întrerupător pe toate fazele, conform categoriei III de protecție împotriva supratensiunii (IEC 61058-1).
Schimbătorul de căldură aer/apă este scos de sub tensiune numai după separarea de toate sursele de energie!
Scoateți de sub tensiune schimbătorul de căldură aer/apă înainte de deschiderea cutiei de conexiuni electrice și înainte de efectuarea lucrărilor la circuitul de apă, asigurându-l împotriva reporniri accidentale.
Recuplati alimentarea electrica numai daca capacul cutiei de conexiuni electrice este prins corect in șuruburi.
Atenție!
Nu utilizați niciodată lichide inflamabile pentru curățarea schimbătorului de căldură aer/apă.
În cazul orificiilor și decupajelor care nu sunt debavurate complet există riscul de tăiere, în special la montarea schimbătorului de căldură aer/apă.

Safety instructions and warnings

Figyelmeztetések és biztonsági előírások

HU

Figyelem!
Vegye figyelembe az egy személy számára maximálisan megengedett emelhető tömegeket. Szükség esetén emelőberendezést kell használni.
Az elektromos berendezéseken és eszközökön történő munkavégzést csak elektromos szakember, vagy elektromos szakember vezetésével és felügyelete mellett dolgozó beosztott végezheti, az elektrotechnikai szabályok betartásával.
A levegő/víz hőcserélőt csak ezen információk elolvasása után csatlakoztathatják a fent említett személyek a villamos hálózatra!
Csak szigetelt szerszám használható a szereléshez.
Az illetékes áramszolgáltató csatlakoztatási előírásait figyelembe kell venni.
A levegő/víz hőcserélőt a III. túlfeszültségi osztály (IEC 61058-1) szerinti összpólusú szakaszoló kapcsolón keresztül kell a villamos hálózatra csatlakoztatni.
A levegő/víz hőcserélő csak az összes feszültségforrás leválasztása után válik feszültségmentessé!
Az elektromos csatlakozódoboz megnyitása és a vízcsőrendszeren történő munkavégzés előtt kapcsolja a levegő/víz hőcserélőt feszültségmentesre, és biztosítsa a véletlen visszakapcsolás ellen.
Csak akkor kapcsolja vissza a feszültséget, ha az elektromos csatlakozódoboz fedéllemeze megfelelően vissza van csavarozva.

Vigyázat!
Éghető folyadék használata a levegő/víz hőcserélő tisztításához tilos.
A nem teljesen sorjátlanított furatoknál és kivágásoknál vágás veszélye áll fenn, különösen a levegő/víz hőcserélő szerelésekor.

Hoiatused ja ohutusjuhised

EE

Hoiatus!
Arvestada maksimaalsete inimestele lubatud tõstekaaludega. Vajaduse korral kasutada tõsteseadeldist.
Elektripaigaldustõid on lubatud teostada ainult vastavat litsentsi omaval ettevõttel või vastavat pädevust omaval isikul järgides kõiki ohutusnõudeid.
Seadet tohib vooluvõrku ühendada alles peale teabelehega tutvumist.
Lubatud on kasutada ainult selleks ettenähtud tööriistu.
Järgida kõiki vooluvõrku ühendamise eeskirju.
Seadet tohib võõoluvõrku ühendada kasutades ainult III ülepigekategooria (IEC 61058-1) kaitseautomaati.
Õhk-vesi soojusvaheti on vooluta alles pärast kõikidest vooluallikatest eraldamist.
Eraldage õhk-vesi soojusvaheti kõikidest voolu ja pingeallikatest ja veeringlusest ning kindlustage seade tahtmatu sisselülitamise eest.
Ühendage seade vooluvõrku ja veeringlusega alles peale elektrilise harukarbi sulgemist.

Ettevaatust!
Ärge kasutage õhk-vesi soojusvaheti puhastamiseks kergesti süttivaid aineid ega vedelikke.
Paigaldamisel pöörata tähelepanu puuraukude ja lõikekohtade olemasolule, et vältida vigastusi.

Opozorila in varnostni napotki

SI

Opozorilo!
Upoštevajte največjo dovoljeno težo, ki jo oseba lahko varno dvigne. Po potrebi uporabite dvižno napravo.
Dela na električnem sistemu ali napravah lahko izvaja samo usposobljeni električar ali usposobljeno osebje pod vodstvom in nadzorom usposobljenega električarja, ki poskrbi, da so dela opravljena v skladu z elektrotehničnimi in varnostnimi predpisi.
Toplotno črpalko zrak/voda je dovoljeno priključiti šele, ko so zgoraj navedene osebe prebrale ta opozorila.
Uporabljajte samo izolirano električno orodje.
Upoštevati je treba predpise za priključevanje naprav pristojnega podjetja za distribucijo električne energije.
Toplotno črpalko zrak/voda morate v omrežje priključiti prek separatorja z vsemi poli v skladu s prenapetostno kategorijo III (IEC 61058-1).
Toplotna črpalka zrak/voda je pod električno napetostjo, dokler je ne ločite od vseh virov električne napetosti.
Pred odpiranjem električne priključne omarice in pred izvajanjem del na hidrološkem ciklu toplotno črpalko zrak/voda izključite iz električnega omrežja in jo zavarujte pred nenamernim ponovnim vklopom.
Napravo znova priključite v električno omrežje šele takrat, ko je prekrivna pločevina električne priključne omarice ustrezno pritrjena.

Pozor!
Za čiščenje toplotne črpalke zrak/voda ne uporabljajte vnetljivih tekočin.
Če robovi niso popolnoma zbrušeni, se pri stiku z izvrtinami in izrezi lahko poškodujete, še posebej pri montaži toplotne črpalke zrak/voda.

Įspėjamieji ir saugos nurodymai

LT

Įspėjimas!
Prašom įvertinti reikalavimus, nurodančius žmonėms leidžiamus kelti svorius. Prireikus naudoti kėlimo įrangą.
Darbus su elektros įranga ar prietaisais gali atlikti tik kvalifikuotas elektrikas arba apmokyti darbuotojai, kuriems vadovauja ir kuriuos prižiūri kvalifikuotas elektrikas. Būtina laikytis elektrotechnikos taisyklių.
Anksčiau paminėti asmenys gali prijungti oro / vandens šilumokaitį tik susipažinę su šia informacija!
Galima naudoti tik izoliuotus nuo elektros įtampos įrankius.
Privalu laikytis atsakingos elektros tiekimo tinklų bendrovės parengtų instrukcijų.
Oro / vandens šilumokaitis turi būti prijungtas prie tinklo naudojant visų polių atskyrimo įtaisą, atitinkantį III viršįtampio kategoriją (IEC 61058-1).
Oro / vandens šilumokaityje nelieka įtampos tik atjungus visus įtampos šaltinius!
Prieš atidarydami elektros jungčių dėžę ir dirbdami prie vandens kontūro, išjunkite oro / vandens šilumokaičio įtampos tiekimą ir įsitikinkite, kad jis nebūtų įjungtas.
Įjunkite įtampą tik tada, kai elektros jungčių dėžės dangtelis bus tinkamai priveržtas.

Atsargiai!
Valydami oro / vandens šilumokaitį, niekada nenaudokite degių skysčių.
Blogai apdorojus angų ar išpjovų kraštus kyla pavojus susipjaustyti, vpač montuojant oro / vandens šilumokaitį.

Brīdinājuma un drošības norādījumi

LV

Brīdinājums!
Lūdzu, ievērojiet ierobežojumus attiecībā uz maksimālo svaru, ko ļauts celt vienai personai. Izmantojiet atbilstošas celšanas ierīces, kad tas ir nepieciešams.
Darbu ar elektriskajām sistēmām un ierīcēm ļauts veikt vienīgi elektriķiem vai kvalificētiem darbiniekiem, kas atrodas elektriķa vadībā un uzraudzībā. Visi darbi jāveic saskaņā ar elektriskās inženierijas noteikumiem.
Gaisa/ūdens siltummaini drīkst pieslēgt tikai pēc tam, kad iepriekšminētie darbinieki ir iepazinušies ar šo informāciju!
Izmantojiet tikai ar elektroizolāciju nodrošinātus darbarīkus.
Levērojiet izmantotā elektropiegādes uzņēmuma pieslēguma noteikumus.
Gaisa/ūdens siltummainis pie elektrotīkla jāpieslēdz, izmantojot daudzfāzu jaudas slēdzi, kas atbilst pārsprieguma kategorijai III (IEC 61058-1).
Gaisa/ūdens siltummainis ir pieslēgts spriegumam, līdz tas tiek atslēgts no visiem strāvas avotiem!
Pirms elektrības savienojumu kārbas atvēršanas un pirms darba ar ūdens cirkulācijas sistēmu atslēdziet gaisa/ūdens siltummaini no strāvas padeves un nodrošinieties pret nejaušu tā ieslēgšanu.
Strāvas padevi pieslēdziet tikai pēc tam, kad ir cieši pieskrūvēts elektrības savienojumu kārbas metāla pārsegs.

Piesardzību!
Gaisa/ūdens siltummaiņa tīrīšanai nekad neizmantojiet uzliesmojošus šķidrumus.
Izurbtie caurumi un atvērumi nav pilnībā noslīpēti, līdz ar to pastāv risks sagriezt rokas, īpaši gaisa/ūdens siltummaiņa uzstādīšanas laikā.

Upozornenia a bezpečnostné pokyny

SK

Výstraha!
Dodržiavajte maximálne limity pre osoby na zdvíhanie bremien. V prípade prekročenia tohto limitu použite zdvíhacie zariadenie.
Práce na elektrických alebo výrobných zariadeniach môžu vykonávať len osoby, ktoré sú na to odborne a technicky spôsobilé v zmysle platných predpisov a legislatívy SR alebo zaškolený personál pod vedením a dohľadom takto spôsobilej osoby.
Vyššie uvedené osoby môžu zapojiť výmenník tepla vzduch/voda až vtedy, keď sa oboznámia s týmito informáciami!
Pri práci sa môže používať len izolované náradie.
Treba dbať na predpisy príslušného dodávateľa elektrickej energie týkajúce sa zapojenia.
Výmenník tepla vzduch/voda musí byť pripojený k sieti prostredníctvom zariadenia na odpojenie vo všetkých póloch podľa kategórie prepätia III (IEC 61058-1).
Výmenník tepla vzduch/voda je v beznapäťovom stave až po odpojení od všetkých zdrojov napätia!
Pred otvorením rozvodnej skrine elektro a pred realizáciou prác na vodnom okruhu odpojte výmenník tepla vzduch/voda od napätia a zabezpečte ho proti nechcenému opätovnému zapojeniu.
Zariadenie pripojte k napätiu až po riadnom naskrutkovaní krycieho plechu rozvodnej skrine elektro.

Pozor!
Na čistenie výmenníka tepla vzduch/voda nikdy nepoužívajte horľavé kvapaliny.
Na nedostatočne začistených vyvŕtaných otvoroch a výrezoch hrozí nebezpečenstvo porezania, najmä pri montáži výmenníka tepla vzduch/voda.

Предупреждения и указания по безопасности

RU

Предупреждение!
При переноске людьми обращайте внимание на максимально допустимый вес. При необходимости используйте подъемное устройство.
Работы с электрическими установками и оборудованием разрешено проводить только специалистам по электротехнике или прошедшему инструктаж персоналу под руководством и надзором специалиста по электротехнике, в соответствии с электротехническими правилами.
Подключение воздухо-водяного теплообменника разрешается проводить вышеуказанным лицам только после прочтения данной информации!
Необходимо использовать изолированный инструмент.
Необходимо соблюдать указания по подключению компетентного энергопредприятия.
Воздухо-водяной теплообменник должен быть подключен к сети питания через многополюсное разъединительное устройство с категорией перенапряжения III (МЭК 61058-1).
Воздухо-водяной теплообменник является обесточенным только при отключении всех источников напряжения!
Перед открытием бокса подключения и работами на водяном контуре отключите питание воздухо-водяного теплообменника и обеспечьте защиту от непреднамеренного включения.
Подключение напряжения можно производить только тогда, когда защитная панель бокса подключения полностью закрыта.

Внимание!
Никогда не используйте горючие жидкости для чистки воздухо-водяного теплообменника.
При невыполнении зачистки отверстий и вырезов имеется опасность проеза, в частности, при монтаже воздухо-водяного теплообменника.

EN

Contents

EN

1 Notes on documentation

1.1 CE label

Rittal GmbH & Co. KG confirms the conformity of the air/water heat exchanger with the European Union's Machinery Directive 2006/42/EC and EMC Directive 2014/30/EU. A corresponding declaration of conformity has been issued and enclosed with the unit.

CE

1.2 Storing the documents

The assembly and operating instructions as well as all other applicable documents are an integral part of the product. They must be issued to everyone who works with the air/water heat exchanger and must always be available and on hand for operating and maintenance personnel.

1.3 Symbols used in these operating instructions

The following symbols are used in this documentation:

Warning!
Hazardous situation which may lead to death or serious injury if the instructions are not followed.

Caution!
Hazardous situation which may lead to (minor) injuries if the instructions are not followed.

Note:
Important notices and indication of situations which may result in material damage.

■ This symbol indicates an "Action Point" and shows that you should perform an operation/procedure.

1.4 Other applicable documents

Assembly and operating instructions exist as paper documents for the air/water heat exchanger described here and are enclosed with the equipment.

We cannot accept any liability for damage associated with failure to observe these instructions. Where applicable, the instructions for any accessories used also apply.

2 Safety instructions

Please observe the following general safety notes when assembling and operating the unit:

– Assembly, installation and servicing may only be performed by properly trained specialists.
– Only use the air/water heat exchanger within the prescribed water inlet and operating temperature range.
– Use antifreeze agents only with the manufacturer's consent.
– Do not obstruct the air inlet and air outlet of the air/water heat exchanger inside the enclosure (see section 4.3.2 "Mounting options").
– The heat loss of the components installed in the enclosure must not exceed the specific useful cooling output of the air/water heat exchanger.
– The air/water heat exchanger must always be transported in a vertical position.
– Use only original spare parts and accessories.
– Do not make any changes to the air/water heat exchanger other than those described in these instructions or associated instructions.
– The air/water heat exchanger must only be connected to the mains with the system de-energised. Connect the prefuse specified on the rating plate.
– Always disconnect the air/water heat exchanger from the supply voltage before servicing or maintenance work.

EN

3 Device description

3.1 Overview

Depending on the model chosen, your air/water heat exchanger may vary in appearance from the illustrations contained in these instructions. However, the functions are identical in principle.

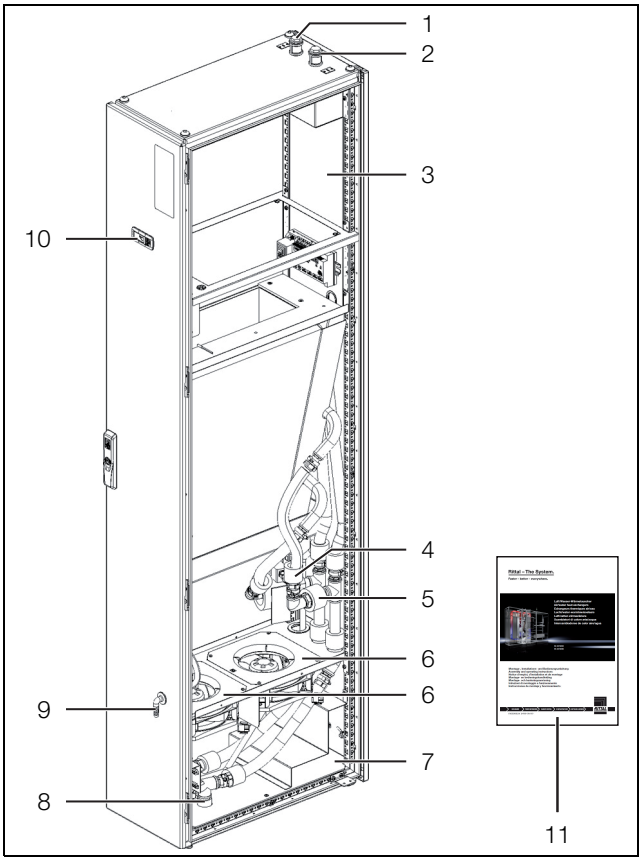

Fig. 1: Device description

Key

1 Water inlet, top
2 Water outlet, top
3 Gland for cables and busbars, top
4 Magnetic valve
5 Non-return valve
6 Fan
7 Gland for cables and busbars, bottom
8 Water outlet, bottom
9 Condensate water discharge
10 Display
11 Assembly and operating instructions

3.2 Functional description

Air/water heat exchangers are designed and built to dissipate heat from enclosures by cooling the air inside the enclosure and so protect the temperature-sensitive components.

Air/water heat exchangers are particularly appropriate for the temperature range of +5 °C to +70 °C where comparable units, such as air/air heat exchangers, enclosure cooling units or fan-and-filter units, cannot be used for system reasons to effectively and economically dissipate heat loss.

The air/water heat exchanger is integrated into a VX25 frame and can be incorporated flexibly into a VX25 baying system (to either side or between two VX25 enclosures, see section 4.3.2 "Mounting options").

3.2.1 How it works

The air/water heat exchanger comprises three main components (see fig. 2):

– Heat exchanger package (item 2),
– fan (item 3) and
– magnetic valve (item 5),

connected with each other using pipes

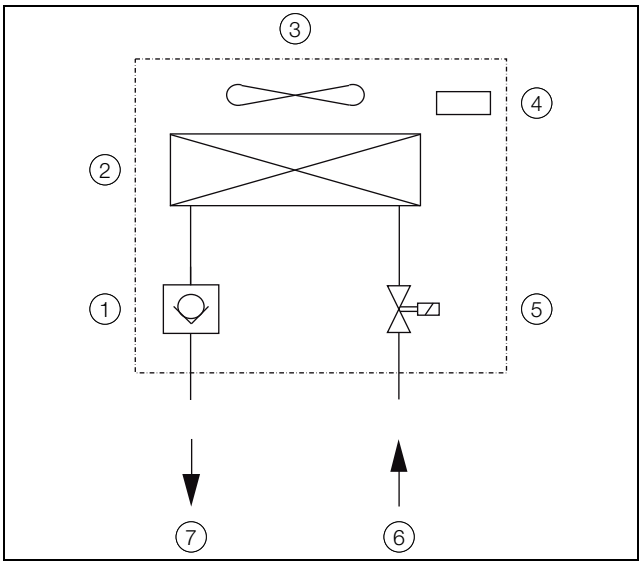

Fig. 2: Air/water heat exchanger

Key

1 Non-return valve
2 Heat exchanger
3 Fan
4 Temperature control
5 Magnetic valve
6 Cooling water inlet
7 Cooling water return

The heat loss of the enclosure is dissipated in a membrane heat exchanger to the water coolant. A fan (item 3) blows the internal enclosure air over the heat exchanger (item 2); except for the inlet and outlet water and the condensed water discharge, the unit is closed to the environment.

The magnetic valve (item 5) controls the cooling output by changing the water flow volume depending on the required target temperature and the water inlet temperature.

3.2.2 Control

Rittal air/water heat exchangers are fitted with an e-Comfort controller for setting the functions of the heat exchanger.

3.2.3 Bus mode

The serial interface X2 allows you to create a bus connection with up to ten air/water heat exchangers using the master-slave cable (shielded, four-wire cable, Model No. 3124.100).

This allows you to implement the following functions:

– Parallel unit control (the air/water heat exchangers in the network can be switched on and off simultaneously)
– Parallel door status message ("door open")
– Parallel collective fault message

Data is exchanged via the master-slave connection. During commissioning, assign an address to each unit that also includes the identifier "master" or "slave" (see section 6.9 "Setting the master-slave identifier").

3.2.4 Safety equipment

– The EC fan is protected against overcurrent and overtemperature by the integral electronics.
– The device has two integral floating contacts on the terminal block 3 – 5, via which system messages from the heat exchanger may be polled e.g. via a PLC (2 x normally-open contacts).
– The air/water heat exchanger has a leak and condensate warning. The device also has an overflow via its base.

3.2.5 Condensation

At high levels of humidity and low cooling water temperatures inside the enclosure, condensation may form on the heat exchanger.

Any condensation that forms on the heat exchanger (with high humidity and low water temperatures) is routed to the front out of the unit via a drain opening in the heat exchanger tray. For this purpose, a hose must be connected to the condensate nozzle (see section 4.3.3 "Connecting the condensate discharge"). The condensate must be able to run off freely. The hose used for draining off condensate must be laid free from kinks and checked for correct drainage. Condensate hoses are available as accessories (refer also to the accessories section in the Rittal Catalogue).

3.2.6 Leak detection

If a leakage or pipe breakage occurs in the water circuit of the air/water heat exchanger, a magnetic valve immediately stops the cooling water supply, the floating change-over contact activated and the fan switched off. The warning "A08" appears on the display.

3.2.7 Door limit switch

The air/water heat exchanger may be operated with a door limit switch connected. The door limit switch is not included with the supply (available as an accessory, Model No. 4127.010).

The door limit switch function causes the fan and the magnetic valve in the air/water heat exchanger to be switched off after approximately 15 seconds when the enclosure door is opened (contacts 1 and 2 closed). This prevents the formation of condensation inside the enclosure while the enclosure door is open.

The fan will start up after about 15 seconds on closure of the door. The connection is made at terminals 1 and 2. The extra-low voltage is supplied by the internal power pack; the current is approx. 30 mA DC.

Note:
The door limit switches must only be connected free from potential. No external voltages!

3.2.8 Additional interface X3

Note:
The electrical signals at the interface are of an extra-low voltage (not extra-low safety voltages to EN 60 335).

An additional interface board may be connected to the 9-pole SUB-D connector X3 in order to incorporate the air/water heat exchanger into higher-level monitoring systems (available as an accessory, interface board Model No. 3124.200).

3.3 Proper use

Rittal enclosure air/water heat exchangers were developed and designed in accordance with the state of the art and the recognised rules governing technical safety. Nevertheless, if used improperly, they may pose a threat to life and limb or cause damage to property. The unit is only intended for cooling enclosures. Any other use is deemed improper. The manufacturer will not be liable for any damages caused as a result of improper use, or for incorrect assembly, installation or use.

All risk is borne solely by the user. Proper usage also includes the observation of all valid documents and compliance with the inspection and servicing conditions.

3.4 Scope of supply

The unit is supplied in a packaging unit in a fully assembled state.

■ Please check the delivery for completeness:

Qty.	Description
1	Air/water heat exchanger
1	Dispatch bag:
1	– Assembly and operating instructions

Tab. 1: Scope of supply

EN

4 Installation

4.1 Safety instructions

Warning!
Please note the maximum weights that may be lifted by individuals. It may be necessary to use lifting gear.

Warning!
Work on electrical systems or equipment may only be carried out by an electrician or by trained personnel under the guidance and supervision of an electrician.

The air/water heat exchanger may only be connected after the aforementioned personnel have read this information!

Use only insulated tools.

Follow the connection regulations of the appropriate electrical supply company.

The air/water heat exchanger must be connected to the mains via an all-pin isolating device to overvoltage category III (IEC 61 058-1).

The air/water heat exchanger is not de-energised until all of the voltage sources have been disconnected!

4.2 Siting location requirements

- When choosing the installation site for the enclosure, please observe the following:
  - The air/water heat exchanger must be installed and operated in a vertical position.
  - The ambient temperature must not exceed +70 °C.
  - It must be possible to fit a condensate discharge (see section 4.3.3 "Connecting the condensate discharge").
  - It must be possible to fit a cooling water supply and return (see section 4.4 "Connecting the water connection").
  - The mains connection data as stated on the rating plate of the unit must be guaranteed.
  - Clearance of at least 1 m must be left in front of the door to guarantee convenient access in case of servicing.

4.3 Assembly procedure

4.3.1 Assembly instructions

- Check the packaging carefully for signs of damage. Packaging damage may be the cause of a subsequent functional failure.
  - The enclosure must be sealed on all sides (IP 54). Increased condensation will occur if the enclosure is not airtight.
  - The air inlet and outlet must not be obstructed on the inside of the enclosure.

- When arranging the components inside the enclosure, please ensure that the cold airflow from the air/water heat exchanger is not directed at active components.

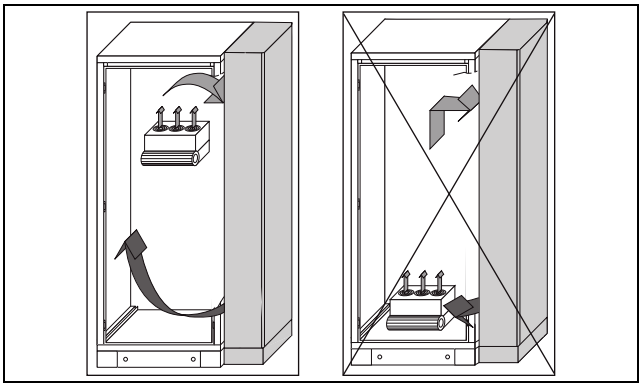

Fig. 3: Never direct the cold airflow at active components

- Please also ensure that the cold airflow is not directed at the warm exhaust airflow from active components such as converters.
  This may lead to an air short-circuit and therefore prevent adequate climate control, or may even cause the air/water heat exchanger's internal safety devices to cease cooling operation.
- Exercise particular caution with the airflow from the blowers of built-in electronic components (fig. 3).
- Never site the air/water heat exchanger directly adjacent to the mounting plate.
  If such installation is unavoidable, appropriate measures must be taken to optimise the air routing.
- It is important to ensure even air circulation inside the enclosure.
  Under no circumstances should air inlet and outlet openings be obstructed, otherwise the cooling performance of the unit will be reduced.
- Ensure a suitable distance from electronic components and other installed enclosures so that the required air circulation is not obstructed and prevented.

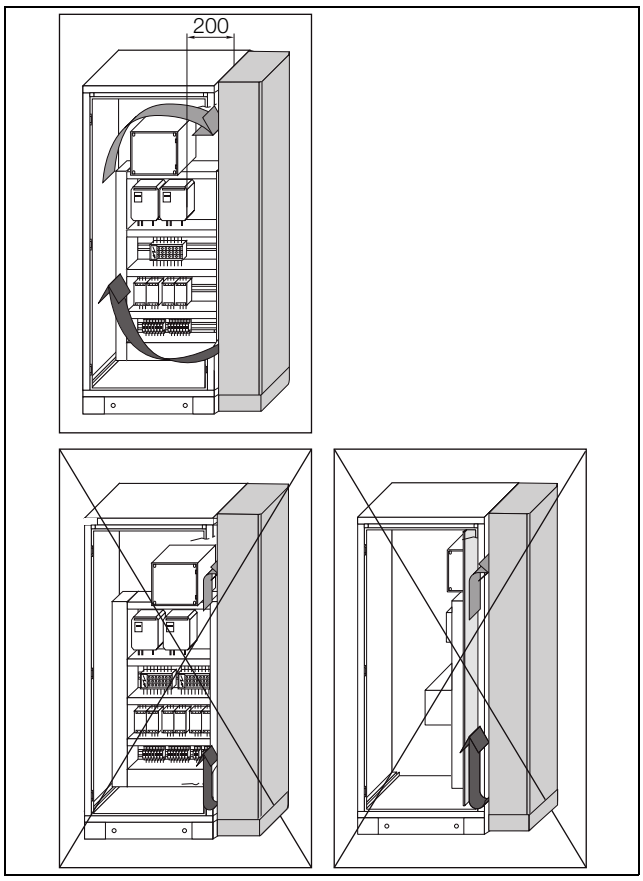

Fig. 4: Targeted air routing inside the enclosure

4.3.2 Mounting options

The air/water heat exchanger enclosure can be placed either within or to the right or left of an existing VX25 enclosure suite (observe dimensions!).

Note:
Use the assembly parts included with the Rittal system accessories to ensure secure baying.

Baying on the left or right

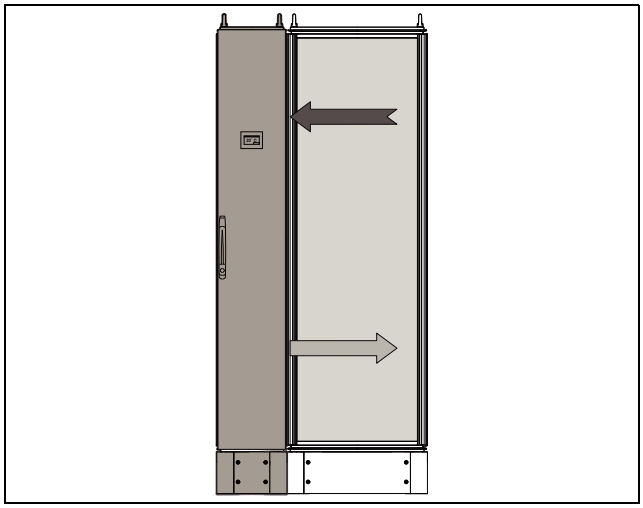

Fig. 5: Baying on the left or right

If the air/water heat exchanger is bayed on the left or right, the left side or right side of the air/water heat exchanger (as appropriate) must be sealed with a side panel for VX25 enclosure systems.

Baying in the middle of an enclosure suite

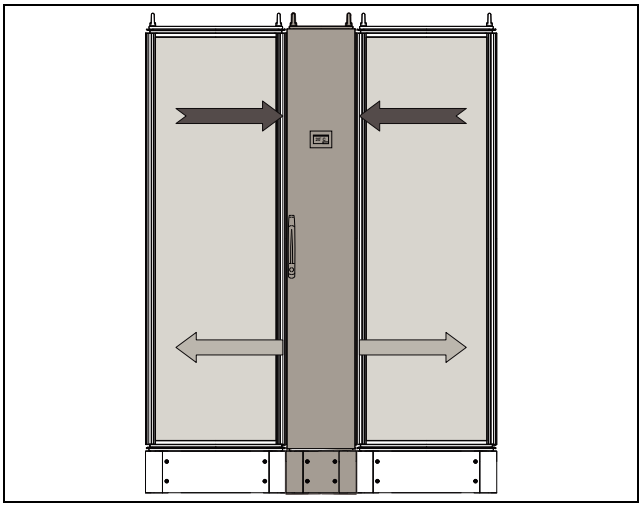

Fig. 6: Baying in the middle of an enclosure suite

In case of installation within an enclosure suite, it is not necessary to seal the air/water heat exchanger to the left or right.

Baying between two VX25 enclosures

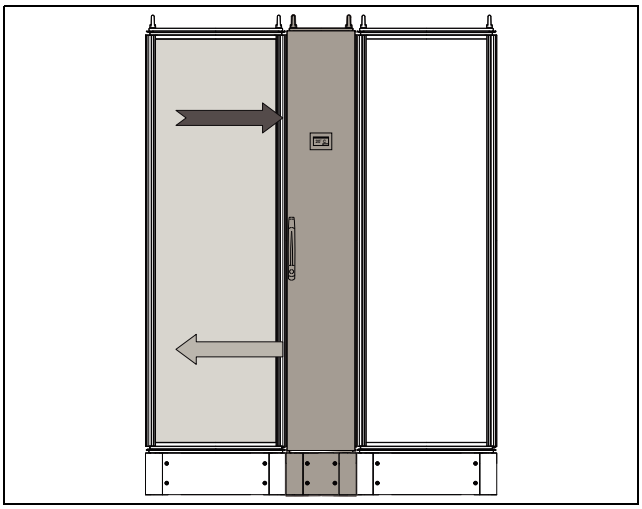

Fig. 7: Baying between two VX25 enclosures

If the air/water heat exchanger is placed between two VX25 enclosures, but cooling is only required on one side, the air inlet opening can be closed with an optional metal cover.

Note:
The enclosure must be sealed on all sides. In particular, in the area of the cable inlet openings and the enclosure base.

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Note:
The air/water heat exchanger may be fitted on a base/plinth system (refer also to Accessories in the Rittal Catalogue).

4.3.3 Connecting the condensate discharge

A flexible condensate hose, dia. 12 mm (½"), can be fitted to the air/water heat exchanger to drain any condensate into a collecting bottle.

The condensate discharge
– must be laid with a suitable and constant gradient (no siphoning),
– must be laid without kinks and
– must not have a reduced cross-section if extended.

The condensate hose (3301.612), condensate collecting bottle (3301.600) and external condensate evaporator (3301.500 or 3301.505) are available as accessories (see also Accessories in the Rittal Catalogue).

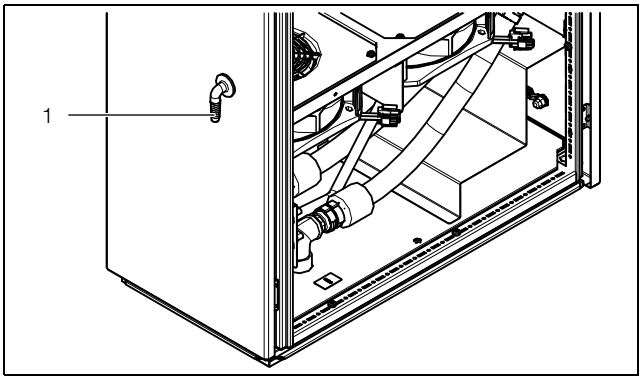

Fig. 8: Connecting the condensate discharge

Key
1 Connecting the condensate discharge

- Connect a suitable hose to the condensate nozzle (at the bottom of the door) and secure it with a hose clip (with 2 Nm torque).
- Lay the condensate hose, e.g. into a drain.

4.4 Connecting the water connection

The water hoses may optionally be connected to the top or bottom of the device (¾" internal thread).

- First, remove the sealing caps using an SW 22 open-jawed spanner.

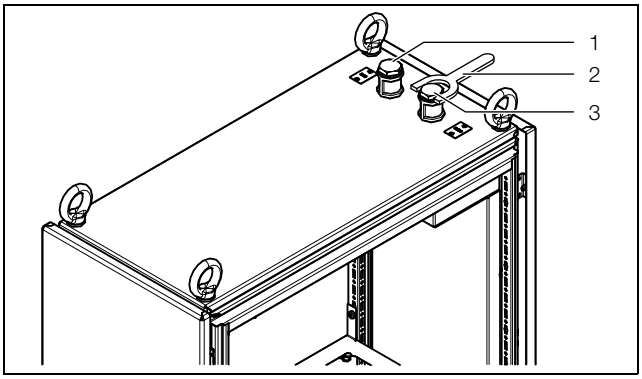

Fig. 9: Removing the sealing caps at the top

Key
1 Water inlet, top
2 Open-jawed spanner
3 Water outlet, top

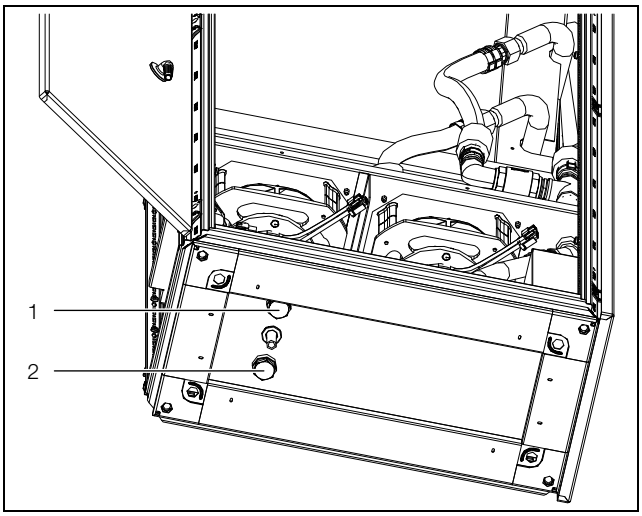

Fig. 10: Removing the sealing caps at the bottom

Key
1 Water outlet, bottom
2 Water inlet, bottom

The cooling water hose
– must be laid without kinks
– must not have a reduced cross-section if extended and
– if necessary, must be insulated.

Warning!
Switch off the power supply to the air/water heat exchanger before opening the electrical connection box and before working on the water circuit, and take suitable precautions against it being accidentally switched on again.

Note:
The water inlet temperature should be selected to prevent the formation of critical condensation in the enclosure being cooled.

Note:
The water circuit should be protected from ingress of dirt or excess pressure (maximum permitted operating pressure 10 bar)!

Note:
Volumetric flows >3,000 l/h may cause damage to the device. Suitable measures should be taken to regulate the volumetric flow, such as flow regulator valves. Damage caused by excessive volumetric flows will not be covered by Rittal's warranty.

Note:
No increase in cooling output is achieved with flow rates >3,000 l/h.

Note:
Observe the flow direction and check for leaks!

The units do not have any separate ventilation. They may be vented using the water connections on the top of the device (either manually or by installing suitable vent devices).

4.4.1 Notes on water quality

To ensure the reliable operation of the above-mentioned units, the VBG guidelines for cooling water must be observed (VGB R 455 P).

The cooling water must not contain any limescale deposits; in other words, it should have a low level of hardness, in particular, a low level of calcium hardness. In particular, for recooling within the plant, the calcium hardness should not be too high. On the other hand, the water should not be so soft that it attacks the materials. When recooling the cooling water, the salt content should not be allowed to increase excessively due to the evaporation of large quantities of water, since electrical conductivity increases as the concentration of dissolved substances rises, and the water thereby becomes more corrosive.

- Always add the appropriate volume of fresh water.
- Always remove part of the enriched water.

The following criteria for the cooling water must be observed:

– Water with high gypsum content is unsuitable for cooling purposes because it has a tendency to form boiler scale that is particularly difficult to remove.
– The cooling water should be free from iron and manganese, otherwise deposits may occur that accumulate in the pipes and block them.
– At best, organic substances should only be present in small quantities, otherwise sludge deposits and microbiological contamination may occur.

4.4.2 Preparation and maintenance of the water in recooling systems

Depending on the type of installation to be cooled, certain requirements are placed on the cooling water with respect to purity. According to the level of contamination and the size and design of the recooling systems, a suitable process is used to prepare and/or maintain the water.

The most common types of contamination and most frequently used techniques to eliminate them in industrial cooling are:

Contamination of the water	Procedure
Mechanical contamination	Filter the water using: – Mesh filter – Gravel filter – Cartridge filter – Precoated filter
Excessive hardness	Water softening via ion exchange
Moderate content of mechanical contaminants and hardeners	Addition of stabilisers and/or dispersing agents to the water
Moderate content of chemical contaminants	Addition of passifiers and/or inhibitors to the water
Biological contaminants, slime bacteria and algae	Addition of biocides to the water

Tab. 2: Contamination and procedures for eliminating it

4.5 Routing busbars

Busbars and cables may be routed through the unit at the top or bottom.

Routing at the top

Fig. 11: Routing at the top

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Note:
Under no circumstances should you drill holes into the water pipe cover e.g. in order to fit brackets.

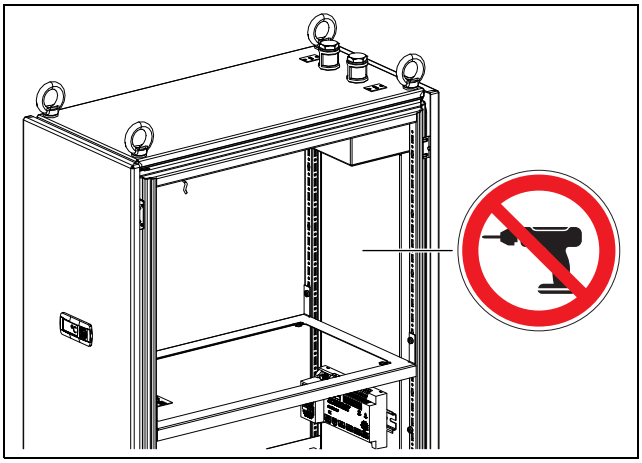

Fig. 12: Cover in front of the water pipes

Routing at the bottom

When using the Rittal busbar system RiLine, pre-prepared cut-outs in the base area may be used for routing N and PE bars.

Fig. 13: Routing at the bottom

- First, cut out the insulation.
- Next, press out the metal along the nominal break points.

Caution!
Drilled holes and cut-outs that have not been fully deburred may cause cut injuries, particularly when assembling the air/water heat exchanger.

Note:
When using other busbar systems, the cut-outs in the base section should be designed to ensure compliance with the clearances and creepage distances to EN 61 439.

4.6 Electrical connection

4.6.1 Notes on electrical installation

- When carrying out the electrical installation, it is important to observe all valid national and regional regulations as well as the provisions of the responsible power supply company.

The electrical installation must comply with EN 61 439 and may only be carried out by a qualified electrician who is responsible for compliance with the applicable standards and regulations.

Connection data

– The connected voltage and frequency must correspond to the values stated on the rating plate.
– The air/water heat exchanger must be connected to the mains via a category III all-pole disconnecting device (IEC 61 058-1) that ensures at least 3 mm contact opening when switched off.
– No additional temperature control may be connected upstream of the unit at the supply end.
– The mains connection must ensure low-noise potential equalisation.

Overvoltage protection and supply line load

– The unit does not have its own overvoltage protection. Measures must be taken by the operator at the supply end to ensure effective lightning and overvoltage protection. The mains voltage must not exceed a tolerance of ±10%.
– In accordance with IEC 61 000-3-11, the unit is intended solely for use at sites with a continuous current-carrying capacity (incoming mains power supply) of more than 100 A per phase and with a supply voltage of 400/230 V. If necessary, the power supply company must be consulted to ensure that the continuous current-carrying capacity at the point of connection to the public grid is sufficient for connection of such a unit.
– The EC fan is protected against overcurrent and overtemperature by the integral electronics. The same also applies to all transformer versions and to special-voltage units which are equipped with a transformer.

- Install the slow pre-fuse specified on the rating plate (miniature circuit-breaker with "C" characteristic, motor circuit-breaker or transformer circuit-breaker) to protect the cable and equipment from short-circuits.
- Select a suitable motor circuit-breaker/transformer circuit-breaker in accordance with the information specified on the rating plate: Set it to the minimum specified value.
  This will achieve the best short-circuit protection for cables and equipment.
  Example: Specified setting range MS/TS 6.3 – 10 A; set to 6.3 A.

Potential equalisation

Rittal recommends connecting a conductor with a nominal cross-section of at least 6 mm^2 to the potential equalisation connection point in the air/water heat exchangers, and incorporating it into the potential equalisation system.

According to the standard, the PE conductor in the mains connection cable is not classified as an equipotential bonding conductor.

4.6.2 Install the power supply

- Open the door of the air/water heat exchanger and remove the cover plate from the electrical connection box.

  The board for connecting the electricity supply line is attached to the rear of the cover.

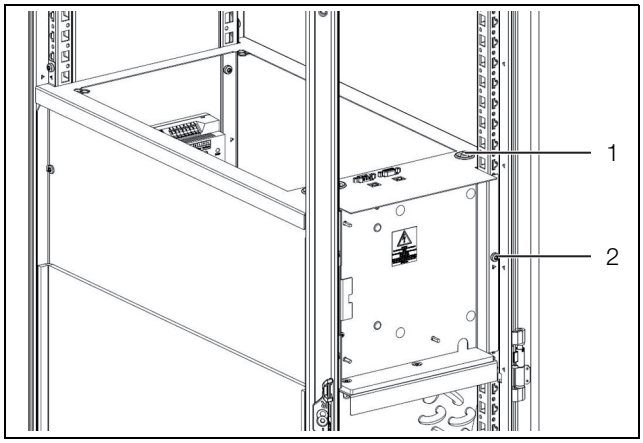

Fig. 14: Remove the cover

Key

1 Cable gland
2 Assembly screws

- Route the electricity supply line through the cable glands from above.
- Following the circuit diagram behind the open door of the air/water heat exchanger, complete the electrical installation.

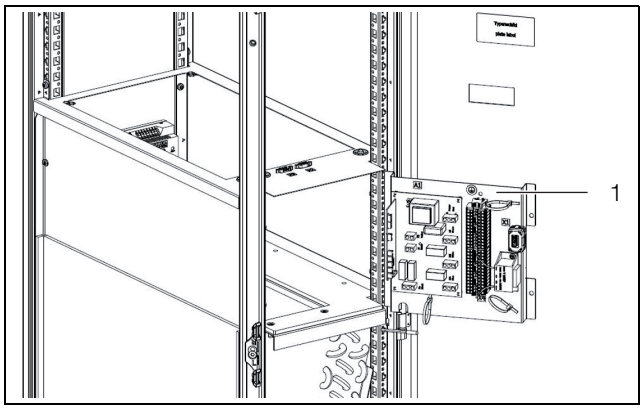

Fig. 15: Opened cover

Key

1 Cover

- Close the electrical connection box with the cover.

When connecting the air/water heat exchanger to NFPA 70 (NEC):

- Use only copper conductors to connect the electricity supply line.
- If you would like system messages from the air/water heat exchanger to be evaluated via the system message relay, you should also connect a suitable low-voltage cable to the relevant terminals as shown in the circuit diagram (see section 13.3 "Circuit diagram").

Warning!
The power supply must not be switched back on until the cover plate of the electrical connection box has been properly screw-fastened into position.

5 Commissioning

- Once all the assembly and installation work is complete, switch on the power supply to the air/water heat exchanger.

The air/water heat exchanger starts running: The software version of the controller first appears for approx. 2 sec., then the enclosure internal temperature appears in the 7-segment display.

You can now make your individual settings on the unit, e.g. set the temperature or assign the network identifier, etc. (see section 6 "Operation").

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6 Operation

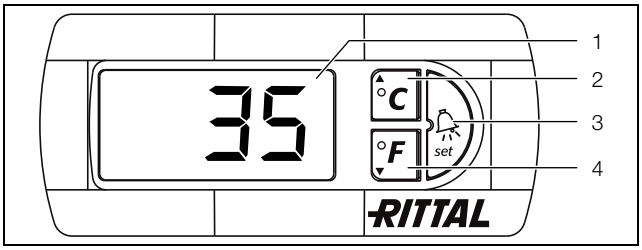

Fig. 16: Display and system analysis of the e-Comfort controller

Key

1 7-segment display
2 Programming button, also display of the set temperature unit (degrees Celsius)
3 Set button
4 Programming button, also display of the set temperature unit (degrees Fahrenheit)

6.1 Properties

– Door limit switch function
– Monitoring of all motors (fans)
– Master-slave function with a maximum of ten units. One device functions as a master unit. Once the set temperature is reached by one of the connected slave units or in the event of the door limit switch function, the affected slave unit will report to the master unit, which will switch all the other air/water heat exchangers on or off as required.
– Switching hysteresis: adjustable from 2 – 10 K, preset to 5 K.
– Visualisation of the current enclosure internal temperature and all error messages in the 7-segment display.

The air/water heat exchanger operates automatically, i.e. after switching on the power supply, the fan (see fig. 2, item 3) will run continuously and permanently circulate the internal enclosure air. The fan and the magnetic valve are controlled by the e-Comfort controller.

The e-Comfort controller has a 7-segment display (fig. 16, item 1). After switching on the power supply, the current software version initially appears on this display for approx. 2 seconds. In regular operation, the display shows both the temperature (in degrees Celsius or Fahrenheit – users may switch between the two) and any error messages.

The current enclosure internal temperature is usually displayed permanently. In the event of an error message, this alternates with the temperature display.

The unit is programmed using buttons 2 – 4 (fig. 16). The relevant parameters also appear in the display.

6.2 Launching test mode

The e-Comfort controller is equipped with a test function, whereby the air/water heat exchanger commences cooling operation independently of the set temperature or door limit switch function.

■ Simultaneously press buttons 2 (°C) and 3 ("Set") (fig. 16) for at least 5 seconds.

The air/water heat exchanger starts running.

After approximately 5 minutes or upon reaching 15 °C, test mode will end. The unit switches off and changes to normal operation.

6.3 General programming information

Using buttons 2, 3 and 4 (fig. 16) you can change the parameters within the preset ranges (min. value, max. value).

Tables 3 and 4 show the parameters which can be altered. Fig. 20 shows which buttons must be pressed.

Note on switching hysteresis:
With a low hysteresis and short switching cycles, there is a risk that cooling may not be adequate or that only partial sections of the enclosure are cooled.

Note on temperature settings:
With the e-Comfort controller, the temperature is preset at the factory to +35 °C. In order to save energy, do not set the temperature lower than that actually necessary.

In principle, the programming is identical for all editable parameters.

To enter programming mode:

■ Press button 3 ("Set") for approx. 5 seconds.
The controller is now in programming mode.

While in programming mode, if you do not press any buttons for approx. 30 sec., the display will first flash, then the controller will switch back to normal display mode. The "Esc" display indicates that any changes made have not been saved.

■ Press the programming buttons "▲" (°C) or "▼" (°F) to switch back and forth between the editable parameters (see tables 3 and 4).
■ Press button 3 ("Set") to select the displayed parameter for editing.
The current value of this parameter is displayed.
■ Press one of the programming buttons "▲" (°C) or "▼" (°F).
The "Cod" display will appear. In order to be able to change a value, you must enter the authorisation code "22".
■ Keep the programming button "▲" (°C) held down until "22" appears.
■ Press button 3 ("Set") to confirm the code.
You can now alter the parameter within the preset limits.
■ Press one of the programming buttons "▲" (°C) or "▼" (°F) until the required value appears.
■ Press button 3 ("Set") to confirm the change.

You can now alter other parameters in the same way. There is no need to re-enter the authorisation code "22".

- To exit programming mode, press button 3 ("Set") again for approximately 5 seconds.
  "Acc" will appear in the display to indicate that the changes have been saved. The display then switches back to regular operation (enclosure internal temperature).

You can also program the e-Comfort controller using a diagnosis software package (Model No. 3159.100), the supply of which also includes a connection cable to the PC. The cable connector on the rear of the e-Comfort controller display serves as an interface.

6.4 Eco-mode

All Rittal TopTherm heat exchangers with e-Comfort controller from firmware 3.2 have the energy-saving eco-mode, which is activated in the delivered state.

The eco-mode is used to save energy in the heat exchanger if there is no thermal load, or there is a low thermal load in the enclosure (e.g. standby operation, no production or weekend). During this process the heat exchanger fan in the internal circuit is switched off as appropriate if the actual enclosure internal temperature drops to 10 K below the setpoint temperature set. Also to reliably measure the internal temperature during this process, the fan starts cyclically for 30 sec. every 10 minutes (fig. 17). If the internal temperature reaches the range 5 K below the setpoint set again, the fan switches back to continuous operation. If required, the eco-mode can be deactivated via the control display. For this purpose switch the parameter from 1 to 0 in the programming level (tab. 3). The fan then runs continuously.

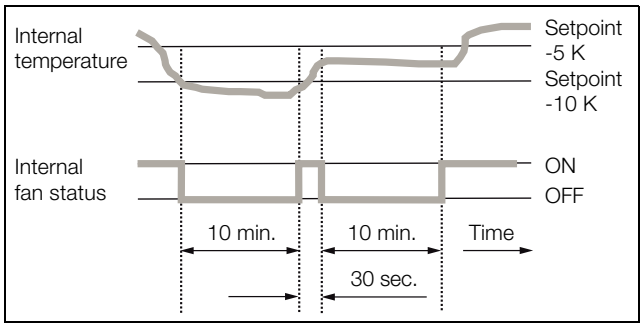

Fig. 17: Diagram of eco-mode

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6.5 Editable parameters

See also fig. 20.

Progr. level	Display screen	Parameters	Min. value	Max. value	Factory setting	Description
1	St	Internal enclosure temperature set-point T_i	20	55	35	The setting of the enclosure internal temperature is preset at the factory to 35 °C and may be altered within a range of 20 – 55 °C.
2	Mod	Control mode 0	0	1	0	Control mode setting. The temperature control is made as factory setting with the magnetic valve (0). It is, however, possible to change the temperature control by starting and stopping the internal fan (1); the magnetic valve then remains permanently open. To use this control mode, the Eco parameter must be changed from 1 (on) to 0 (off).
3	Ad	Master-slave identifier	0	19	0	See section 6.9 "Setting the master-slave identifier"
4	CF	Change-over °C/°F	0	1	0	The temperature display can be switched from °C (0) to °F (1). The corresponding LED displays the current temperature unit.
5	H1	Setting for switching difference (hysteresis)	2	10	5	The air/water heat exchanger is preset in the factory to a switching hysteresis of 5 K. This parameter should only be changed in consultation with us. Please contact us for advice.
6	H2	Differential for error message A2	3	15	5	If the internal enclosure temperature exceeds the set value by more than 5 K, then error message A2 (enclosure internal temperature too high) appears on the display terminal. If necessary, the differential may be altered here within the range of 3 – 15 K.
26	ECO	Eco-mode operation	0	1	1	Eco-mode OFF: 0 / Eco-mode ON: 1

Tab. 3: Editable parameters

6.6 Bus connection

When using several air/water heat exchangers, the serial unit interface can be used to connect up to ten air/water heat exchangers with the bus cable (Model No. 3124.100).

Note:
The electrical signals at the X2 interface are of an extra-low voltage (not extra-low safety voltages in accordance with EN 60 335-1).

When interconnecting, please note the following:

- De-energise the air/water heat exchangers to be connected.
- Ensure proper electrical insulation.
- Make sure the cables are not laid in parallel to power lines.
- Make sure that the lines are short.

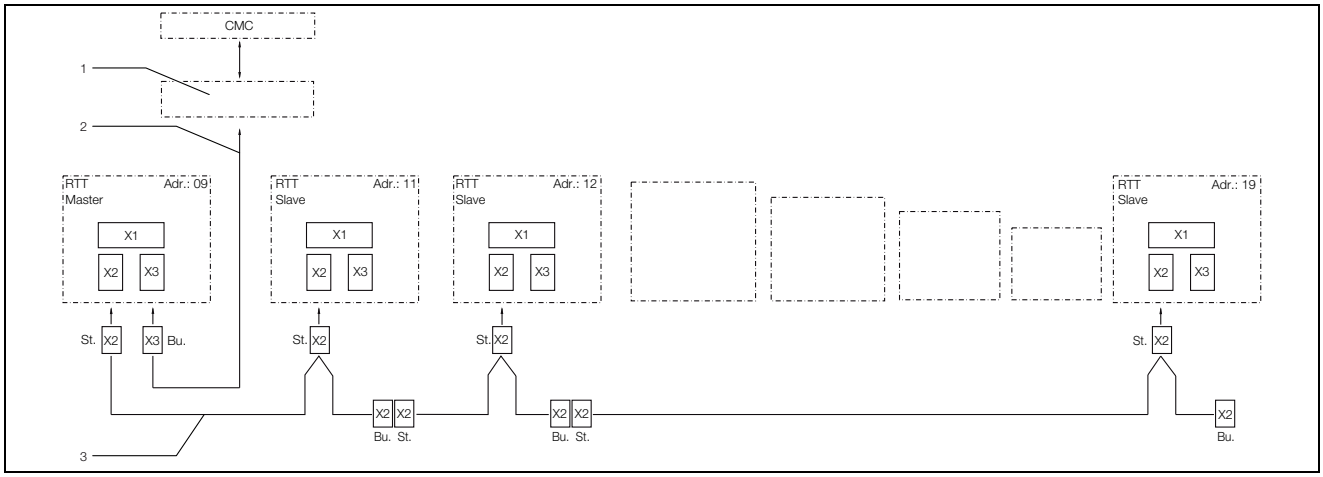

Fig. 18: Connection example: Master-slave operation

Key

1 Serial interface
2 Serial interface cable
3 Master-slave bus cable (Model No. 3124.100)
RTT Rittal TopTherm air/water heat exchanger
X1 Supply connection/Door limit switch/Alarms
X2 Master-slave connection Sub-D, 9-pole
X3 Serial interface Sub-D, 9-pole
St. Sub-D connector, 9-pole
Bu. Sub-D jack, 9-pole
Adr. Address

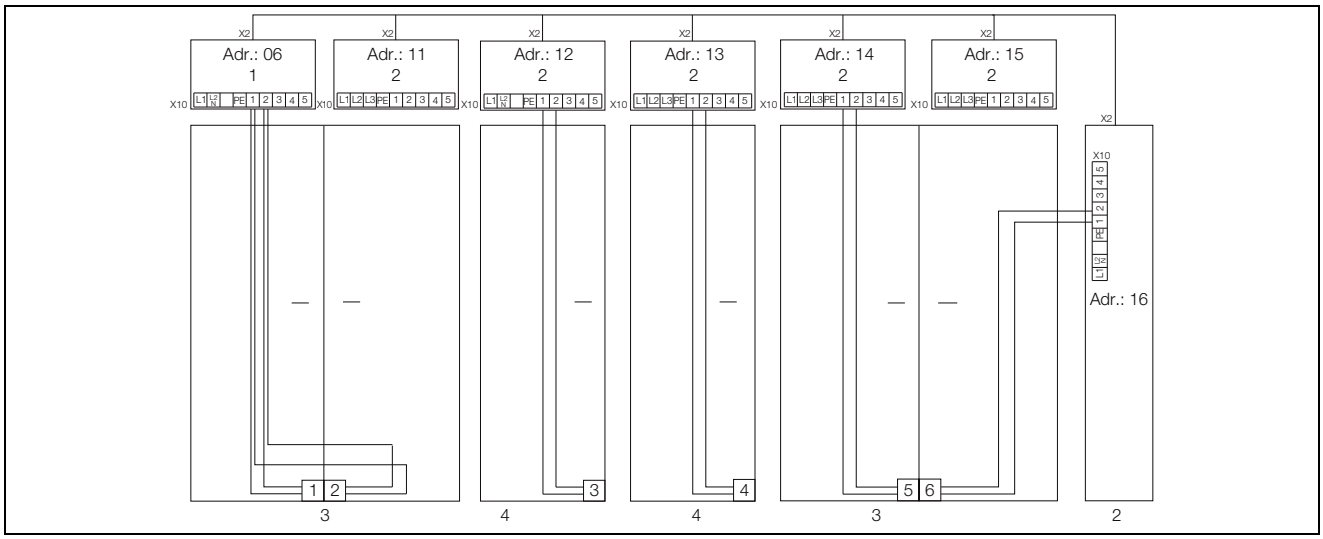

Fig. 19: Connection example: Door limit switch and master-slave operation

Key

1 Master air/water heat exchanger
2 Slave air/water heat exchanger
3 2-door enclosure with two door limit switches
4 Enclosure with door limit switch

EN

6.7 Programming overview of e-Comfort controller

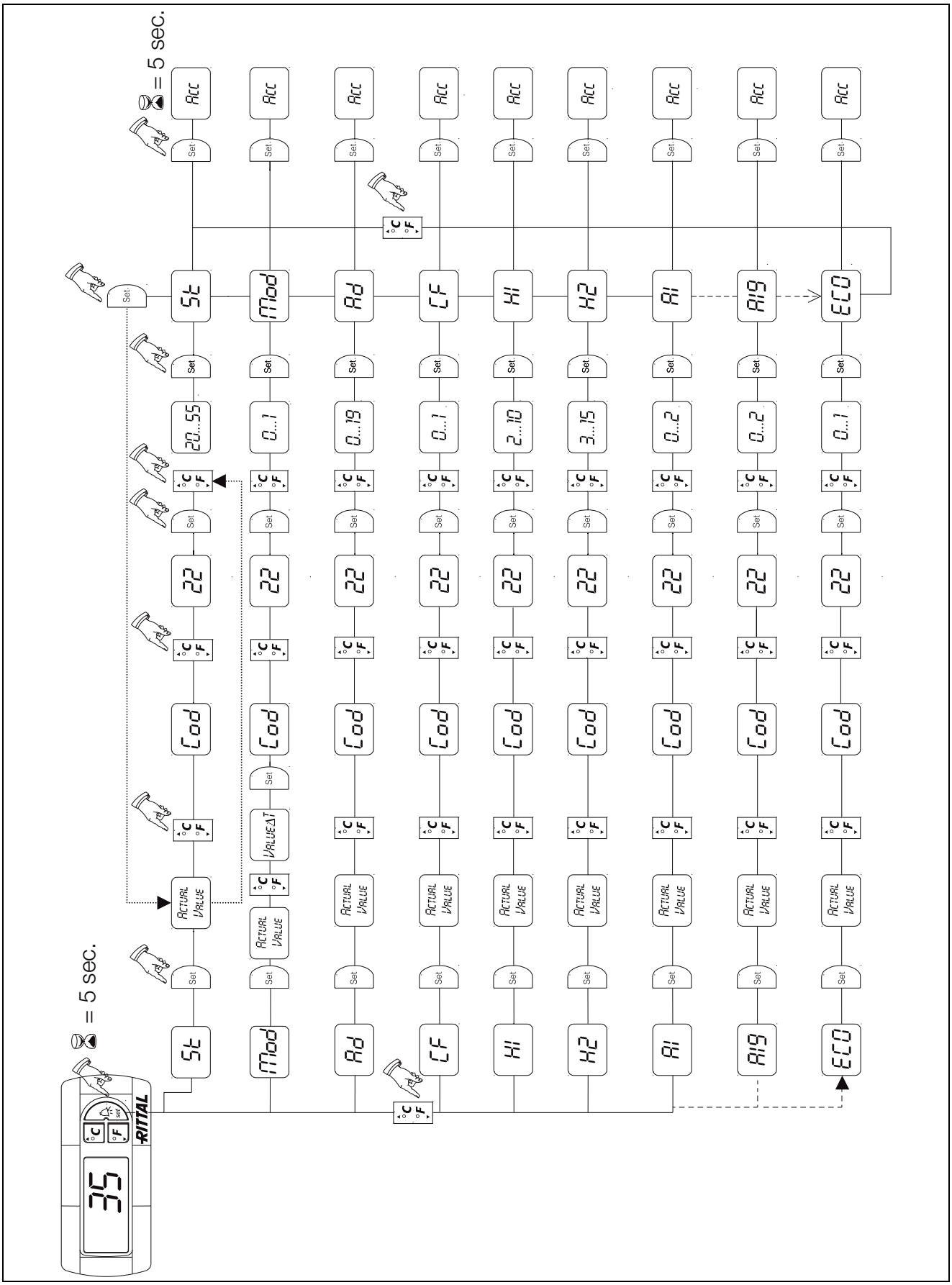

Fig. 20: Programming overview of e-Comfort controller

6.8 Defining system messages for evaluation

System messages are shown on the display screen of the e-Comfort controller via the displays A1 to A20 and E0.

A more detailed explanation of the system messages may be found in section 6.10 "Evaluating system messages" (see also fig. 20).

Progr. level	Display screen	Min. value	Min. value	Factory setting	Type or location of fault
7	A01	0	2	0	Enclosure door open
8	A02	0	2	0	Internal temperature of enclosure too high
9	A08	0	2	1	Condensate warning
10	A10	0	2	1	Fan blocked or defective
11	A16	0	2	1	Internal temperature sensor
12	A18	0	2	1	EPROM
13	A19	0	2	0	LAN/Master-Slave
14	A20	0	2	0	Voltage drop

Tab. 4: System messages which may be evaluated via relays

The system messages A01 – A20 may additionally be evaluated via two floating system message relays. In this way, one of the two system message relays may be allocated to each system message. System message relays with normally open contact, see wiring diagrams at section 4.6.2 "Install the power supply":

– Terminal 3: NO (normally open, relay 2)
– Terminal 4: Connection of the supply voltage to the system message relay
– Terminal 5: NO (normally open, relay 1)

The definition NO refers to the de-energised state. As soon as power is applied to the air/water heat exchanger, both system message relays (relay 1 and 2) energise. This is the normal operating state of the air/water heat exchanger.

As soon as a system message occurs or the power supply is interrupted, the corresponding relay will drop out and open the contact.

Program system messages with the value

– **0:** System message is not sent to the system message relays, but merely appears in the display
– **1:** System message is evaluated by relay 1
– **2:** System message is evaluated by relay 2
– **3:** System message is neither sent to the system message relay, nor does it appear in the display (setting can only be made using RiDiag software)

6.9 Setting the master-slave identifier

When several air/water heat exchangers are connected together (maximum 10), one of the air/water heat exchangers must be defined as the "master" and the others as "slaves". For this purpose, assign a corresponding identifier (address) to each air/water heat exchanger which will enable the air/water heat exchanger to be identified in the network.

If one of the slave units reaches the set temperature or if the door limit switch function is activated, the affected slave unit will report to the master unit, which then deactivates all the other air/water heat exchangers.

Note:
– Only one unit may be configured as master, and its identifier must match the number of connected slave units.
– The slave units must have different identifiers.
– The identifiers must be numbered in ascending order without any gaps.

On the **master air/water heat exchanger** (00 = factory setting), set the number of slave units present in the network

– 01: Master with 1 slave air/water heat exchanger
– 02: Master with 2 slave air/water heat exchanger
– 03: Master with 3 slave air/water heat exchanger
– 04: Master with 4 slave air/water heat exchanger
– 05: Master with 5 slave air/water heat exchanger
– 06: Master with 6 slave air/water heat exchanger
– 07: Master with 7 slave air/water heat exchanger
– 08: Master with 8 slave air/water heat exchanger
– 09: Master with 9 slave air/water heat exchanger

On the **slave air/water heat exchanger** (00 = factory setting), set its own address:

– 11: Slave air/water heat exchanger No. 1
– 12: Slave air/water heat exchanger No. 2
– 13: Slave air/water heat exchanger No. 3
– 14: Slave air/water heat exchanger No. 4

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– 15: Slave air/water heat exchanger No. 5
– 16: Slave air/water heat exchanger No. 6
– 17: Slave air/water heat exchanger No. 7
– 18: Slave air/water heat exchanger No. 8
– 19: Slave air/water heat exchanger No. 9

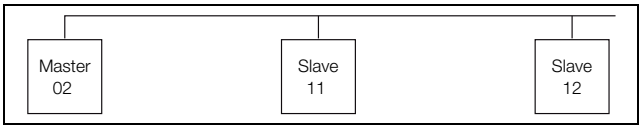

Fig. 21: Master-slave connection (example)

For details of how to set the identifier, see section 6.5 "Editable parameters" or section 6.7 "Programming overview of e-Comfort controller", parameter "Ad".

6.10 Evaluating system messages

In the e-Comfort controller, system messages are indicated by a number in the display.

Display screen	System message	Possible cause	Measures to rectify the fault
A01	Enclosure door open	Door open or door limit switch incorrectly positioned	Close door, position door limit switch correctly, check connection if necessary
A02	Internal temperature of enclosure too high	Cooling capacity inadequate/unit undersized	Check cooling capacity
A08	Condensate warning	Condensate discharge kinked or blocked	Check condensate drainage; correct any kinks or blockages in the hose
A10	Fan	Blocked or defective	Clear the blockage; replace if necessary
A16	Internal temperature sensor	Open or short-circuit	Replace
A18	EPROM error	New board installed incorrectly	Software update needed (only following board installation with more recent software): Enter the programming level with Code 22; press button 1 and confirm with "set" until "Acc" appears. Next, disconnect the unit from the mains and reconnect.
A19	LAN/Master-Slave	Master and slave not connected	Check setting and cable
A20	Voltage drop	Error display not shown	Event is stored in the log file
E0	Display message	Connection problem between the display and the controller board	Reset: Switch power supply off, then switch on again after approx. 2 sec.
		Cable defective; connection loose	Replace the boards

Tab. 5: Troubleshooting with the e-Comfort controller

7 Inspection and maintenance

Warning!
Switch off the power supply to the air/water heat exchanger before opening the electrical connection box and before working on the water circuit, and take suitable precautions against it being accidentally switched on again.

7.1 General

The air/water heat exchanger is largely maintenance free. The water circuit is checked at the factory for leaks and subjected to a function trial run. The installed maintenance-free fan is mounted on ball bearings, protected against moisture and dust, and fitted with a temperature monitor. The life expectancy is at least 60,000 operating hours. The air/water heat exchanger is consequently largely maintenance free. If dirt is present in the cooling water, a filter must be fitted.
Maintenance interval: 2,000 operating hours.

Caution!
Never use flammable liquids for cleaning the air/water heat exchanger.

Sequence of maintenance measures:
– Check the level of dirt.
– Check the noise generation of the fan.

7.2 Fan replacement

- Open the door of the air/water heat exchanger.
- On the front of the cover, pull out the two connectors "Signal" and "Power" for the fan you wish to replace.

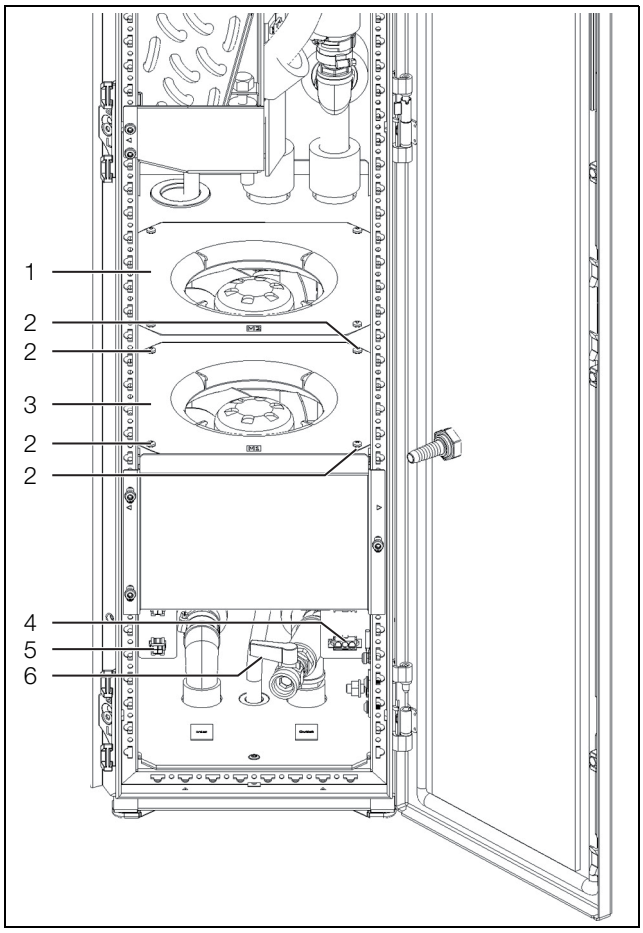

Fig. 22: Fan replacement

Key

1 Rear fan
2 Assembly screws, front fan
3 Front fan
4 "Power" connector
5 "Signal" connector
6 Drain valve

- Loosen and remove the fan's four assembly screws.
- Pull the fan forwards and upwards out of the air/water heat exchanger.
- Fit a new fan in the reverse order.

8 Draining, storage and disposal

Note:
The air/water heat exchanger must not be subjected to temperatures above +70 °C during storage.

During storage, the air/water heat exchanger must stand upright.

Disposal can be performed at the Rittal plant.

- Please contact us for advice.

During storage and transportation below freezing point, the air/water heat exchanger should be drained:

- Open the inlet and return on the top of the device.
- Open the drain valve (fig. 22, item 6).
- Open the magnetic valve by simultaneously pressing keys 2 (°C) and 3 ("Set") (fig. 16) on the e-Comfort controller for 5 seconds.
  The magnetic valve will then be opened for approximately 5 minutes.
- Use compressed air to drain the heat exchanger in the direction of the water outlet.

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9 Technical specifications

- Observe the mains connection data (voltage and frequency) as per the rating plate.
- Observe the pre-fuse as per the specifications on the rating plate.

Technical specifications		
General specifications		
Model number	SK 3378.300	SK 3378.380
Dimensions (width x height x depth) [mm]	300 x 2000 x 600	300 x 2000 x 800
Weight [kg]	106	115
Noise pressure level Lp [dB(A)]	<60	
Cooling output		
Cooling medium	Water (see section 11 "Hydrological data")	
Water connection	¾" internal thread	
Useful cooling output [kW] L35 W10, 2000 l/h	9.5	
Air throughput of fans (unimpeded air flow) [m^3/h]	975 per fan	
Water inlet temperature [°C]	>+7…+30	
Permissible operating pressure p. max. [bar]	1…6	
Operating temperature [°C]	+5…+70	
Setting range [°C]	+20…+55	
Electrical specifications		
Electrical connection	Wiring on terminal strip	
Rated operating voltage [V, ~]	230	
Rated frequency [Hz]	50/60	
Rated current [A]	2.65/2.62	
Pre-fuse T	4	
Power consumption P_{el} to DIN 3168 [W]	350/350	
Protection category to IEC 60 529	IP 55	
Duty cycle	100 %	

Tab. 6: Technical specifications

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10 List of spare parts

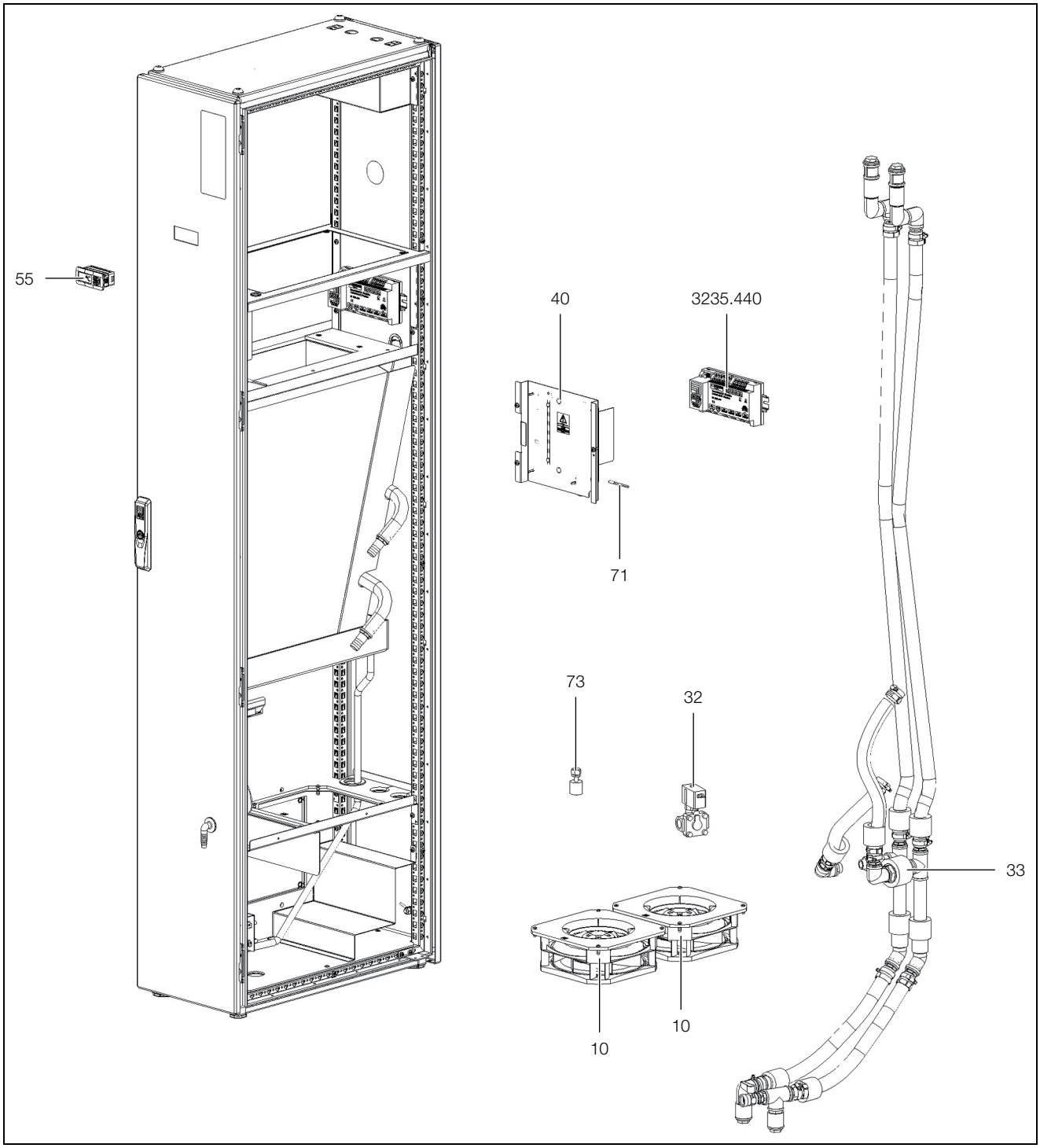

Fig. 23: List of spare parts

Key

10	Fan
32	Magnetic valve
33	Non-return valve
40	Controller board
55	Display
71	Temperature sensor
73	Leak detection
3235.440	Control unit for EC fan (optional/accessory)

Note:
As well as the spare part number, when ordering spare parts the following information must be provided:
– Unit model
– Fabrication number
– Date of manufacture
This information may be found on the rating plate.

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11 Hydrological data

To avoid system damage and to ensure safe operation, Rittal GmbH & Co. KG recommends the use of system water or an additive whose composition does not differ from that presented in the following summary:

Hydrological data	Unit	Limits
pH value		7…8.5
Calcium hardness	°dH	>3 …<8
Free carbonic acid	mg/dm³	8…15
Corresponding carbonic acid	mg/dm³	8…15
Aggressive carbonic acid	mg/dm³	free
Sulphides	mg/dm³	free
Oxygen	mg/dm³	<10
Chloride ions	mg/dm³	<50
Sulphate ions	mg/dm³	<250
Nitrates and nitrites	mg/dm³	<10
COD	mg/dm³	<7
Ammonia	mg/dm³	<5
Iron	mg/dm³	<0.2
Manganese	mg/dm³	<0.2
Conductivity	µS/cm	<2200
Residue on evaporation	mg/dm³	<500
Potassium permanganate	mg/dm³	<25
Suspended matter	mg/dm³	<5
	mg/dm³	>3…<15; partial current purification recommended
	mg/dm³	>15; continuous purification recommended

Tab. 7: Hydrological data

The complete absence of corrosion under experimental conditions suggests that solutions with a significantly higher salt content and greater corrosion potential (such as seawater) can still be tolerated.

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12 Application example

Parallel connection of air/water heat exchangers with cold water supply via a recooling system.
Overflow valves and bypass control should be integrated into the recooling system and the customer's own pipeline system respectively.

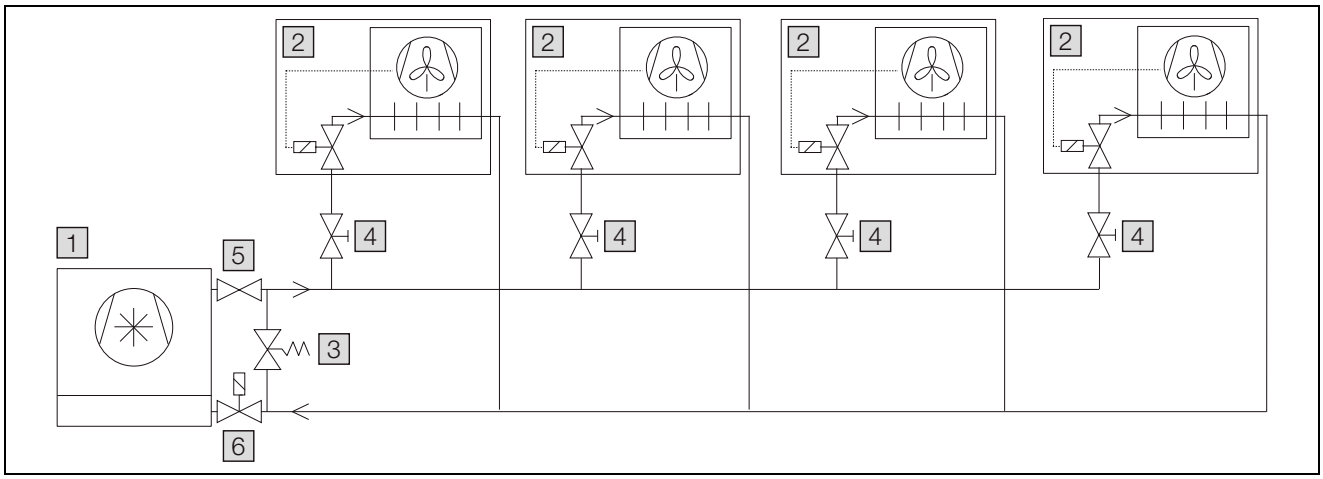

Fig. 24: Parallel connection of 4 air/water heat exchangers

Key

1 Recooling system
2 Air/water heat exchanger
3 Overflow valve (bypass function with closed magnetic valve in the air/water heat exchanger)
4 Flow regulator valve (for volumetric flow control for air/water heat exchangers)
5 Non-return valve (optional)
6 Magnetic valve (optional)

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13 Appendix

13.1 Characteristic curves

13.1.1 Water resistance

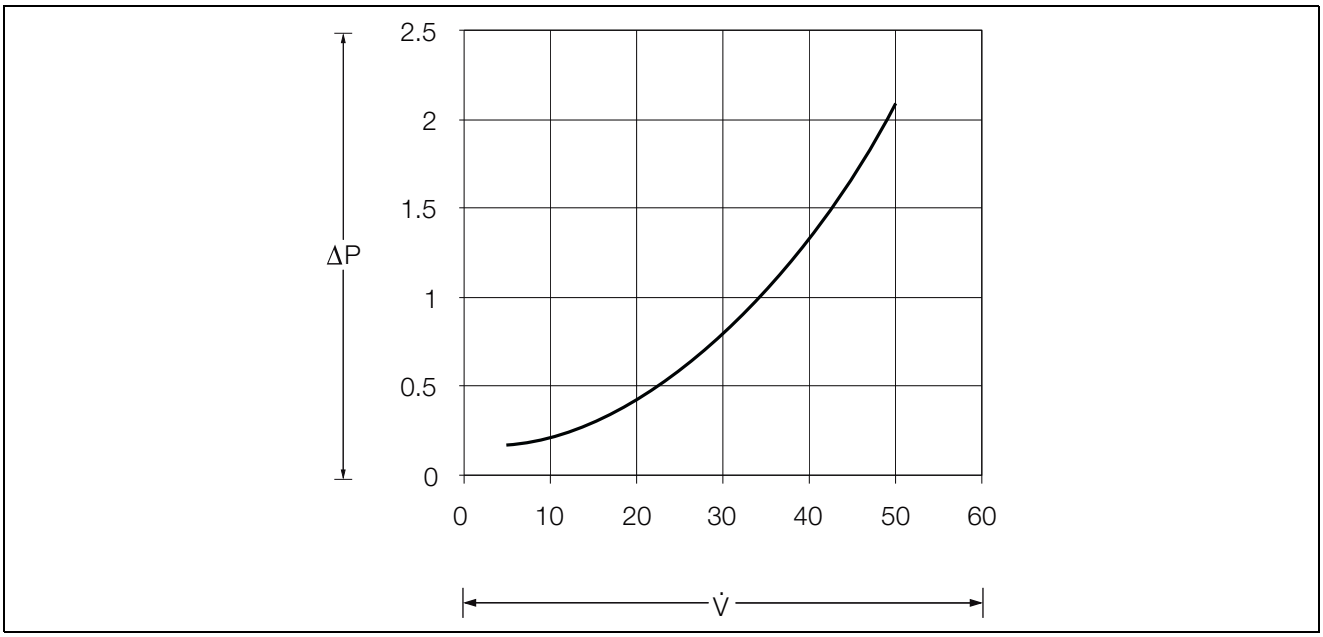

Fig. 25: Water resistance

Key
ΔP Water resistance [bar]
V Volumetric flow [l/min]

13.2 Drawings

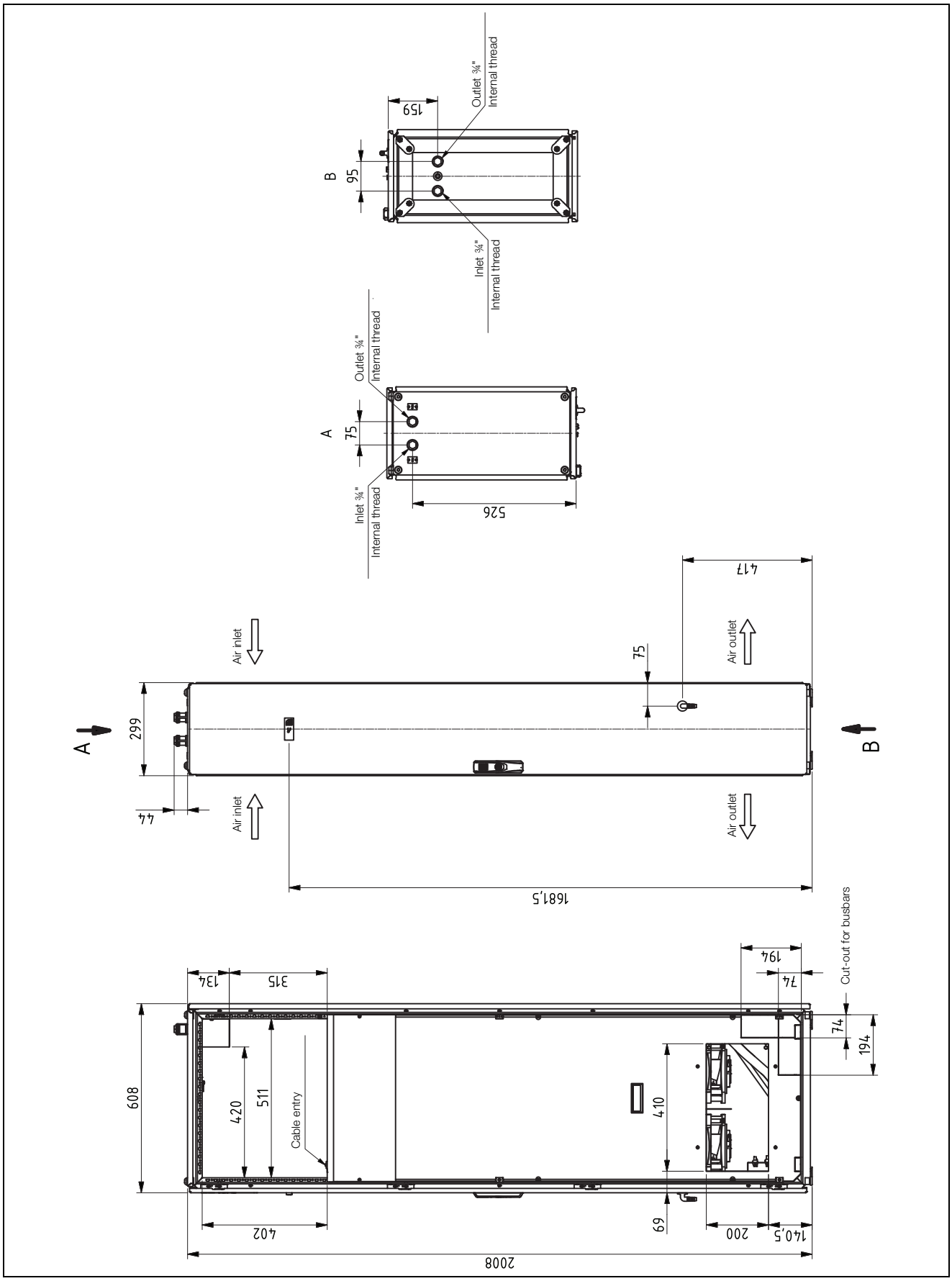

Fig. 26: 3378.300

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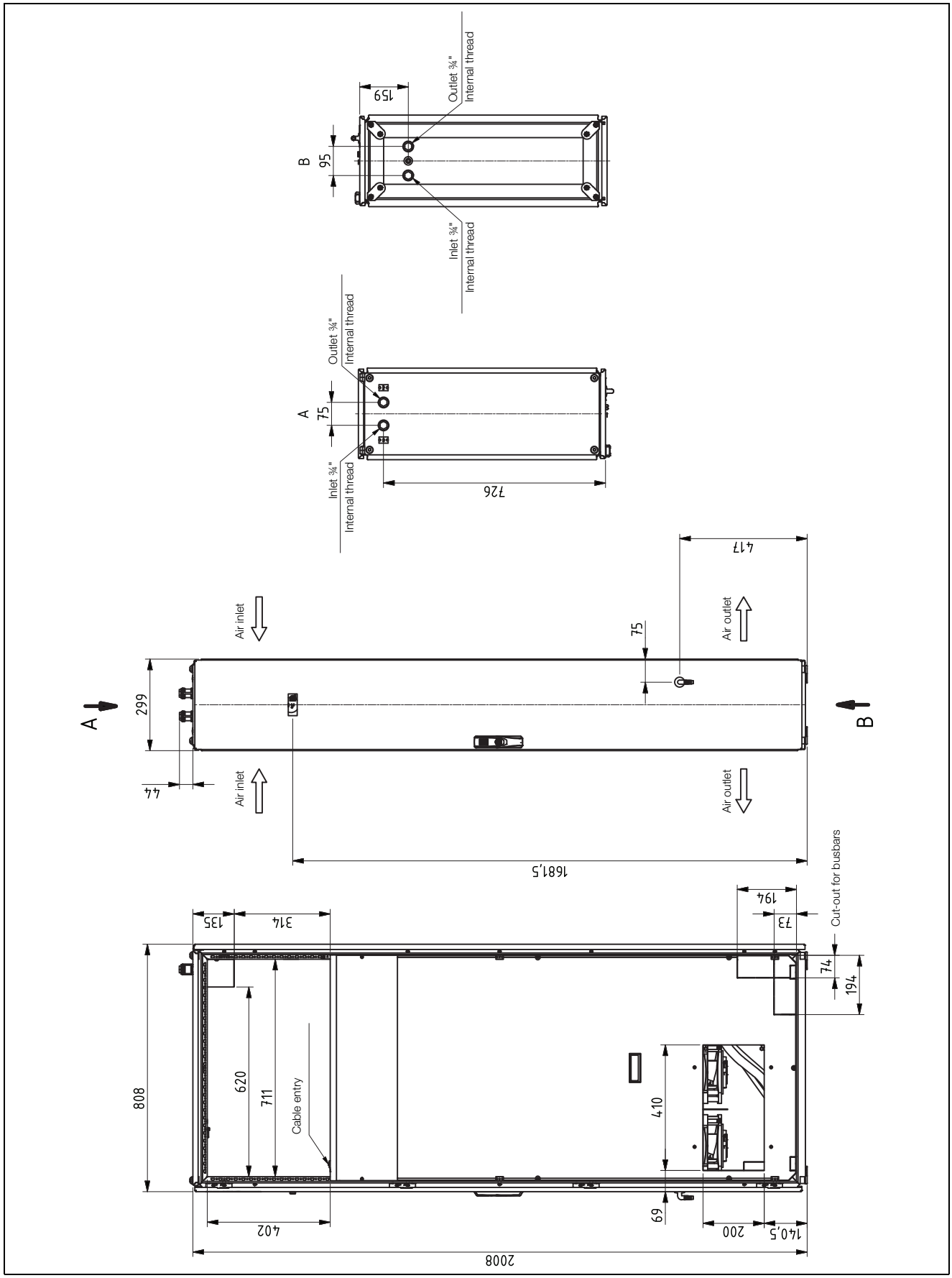

Fig. 27: 3378.380

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13.3 Circuit diagram

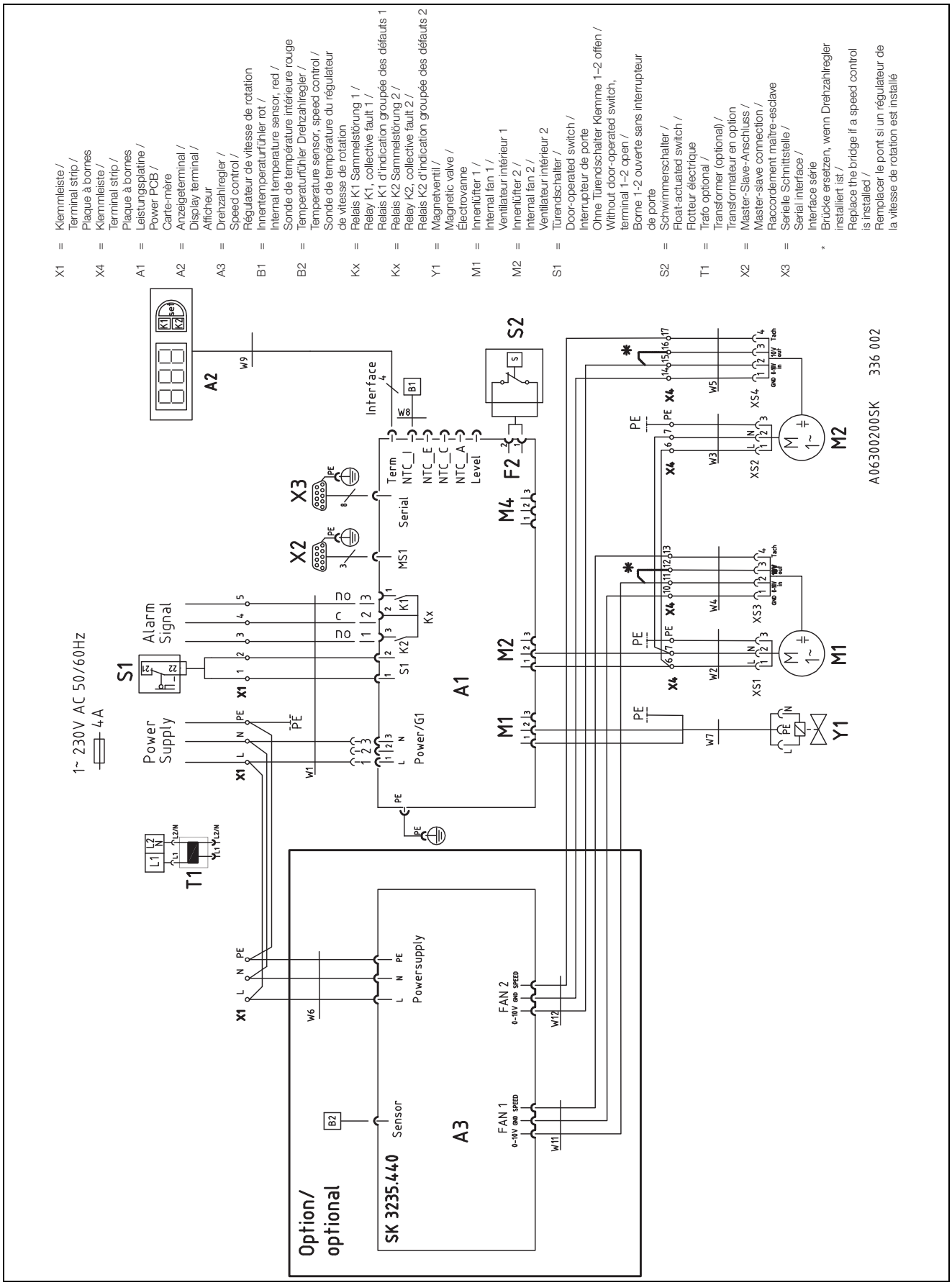

Fig. 28: Circuit diagram

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14 Declaration of conformity

Vereinfachte EU-Konformitätserklärung / Simplified EU Declaration of Conformity

Wir
We

Rittal GmbH & Co. KG, Auf dem Stützelberg, 35745 Herborn

erklären hiermit, dass die Produkte
hereby declare that the products

Liquid Cooling Package LCP Rack Industry

SK 3378.200	SK 3378.280	SK 3378.209	SK 3378.289
SK 3378.300	SK 3378.380	SK 3378.309	SK 3378.389

folgenden Richtlinien entsprechen:
conform with the following directives:

Maschinenrichtlinie 2006/42/EG - Machinery Directive 2006/42/EC
EMV-Richtlinie 2014/30/EU - EMC Directive 2014/30/EU

Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese EG-Konformitätserklärung ihre Gültigkeit.
This declaration of EC conformity shall become null and void when the assembly is subjected to any modification that has not met with our approval.

Die vollständige und unterschriebene EU-Konformitätserklärung erhalten Sie auf der Produktseite der Rittal Homepage www.rittal.com.
The complete and signed declaration of conformity is available at the product site of Rittal homepage www.rittal.com.

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Fig. 29: Declaration of conformity

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