

Rexroth IndraDrive ML

HMU05, HNA05, HLT05

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D Deutsch	USA English	F Français
⚠ WARNING Lebensgefahr bei Nichtbeachtung der nachstehenden Sicherheitshinweise! Nehmen Sie die Produkte erst dann in Betrieb, nachdem Sie die mit dem Produkt gelieferten Unterlagen und Sicherheitshinweise vollständig durchgelesen, verstanden und beachtet haben. Sollten Ihnen keine Unterlagen in Ihrer Landessprache vorliegen, wenden Sie sich an Ihren zuständigen Rexroth-Vertriebspartner. Nur qualifiziertes Personal darf an Antriebskomponenten arbeiten. Nähere Erläuterungen zu den Sicherheitshinweisen entnehmen Sie Kapitel 1 dieser Dokumentation.	⚠ WARNING Danger to life in case of non-compliance with the below-mentioned safety instructions! Do not attempt to install or put these products into operation until you have completely read, understood and observed the documents supplied with the product. If no documents in your language were supplied, please consult your Rexroth sales partner. Only qualified persons may work with drive components. For detailed explanations on the safety instructions, see chapter 1 of this documentation.	⚠ AVERTISSEMENT Danger de mort en cas de non-respect des consignes de sécurité figurant ci-après ! Ne mettez les produits en service qu'après avoir lu complètement et après avoir compris et respecté les documents et les consignes de sécurité fournis avec le produit. Si vous ne disposez pas de la documentation dans votre langue, merci de consulter votre partenaire Rexroth. Seul un personnel qualifié est autorisé à travailler sur les composants d'entraînement. Vous trouverez des explications plus détaillées relatives aux consignes de sécurité au chapitre 1 de la présente documentation.
⚠ WARNING Hohe elektrische Spannung! Lebensgefahr durch elektrischen Schlag! Betreiben Sie Antriebskomponenten nur mit fest installiertem Schutzleiter. Schalten Sie vor Zugriff auf Antriebskomponenten die Spannungsversorgung aus. Beachten Sie die Entladezeiten von Kondensatoren.	⚠ WARNING High electrical voltage! Danger to life by electric shock! Only operate drive components with a permanently installed equipment grounding conductor. Disconnect the power supply before accessing drive components. Observe the discharge times of the capacitors.	⚠ AVERTISSEMENT Tensions électriques élevées ! Danger de mort par électrocution ! N'exploitez les composants d'entraînement que si un conducteur de protection est installé de manière permanente. Avant d'intervenir sur les composants d'entraînement, coupez toujours la tension d'alimentation. Tenez compte des délais de décharge de condensateurs.
⚠ WARNING Gefahrbringende Bewegungen! Lebensgefahr! Halten Sie sich nicht im Bewegungsbereich von Maschinen und Maschinenteilen auf. Verhindern Sie den unbeabsichtigten Zutritt für Personen. Bringen Sie vor dem Zugriff oder Zutritt in den Gefahrenbereich die Antriebe sicher zum Stillstand.	⚠ WARNING Dangerous movements! Danger to life! Keep free and clear of the ranges of motion of machines and moving machine parts. Prevent personnel from accidentally entering the range of motion of machines. Make sure that the drives are brought to safe standstill before accessing or entering the danger zone.	⚠ AVERTISSEMENT Mouvements entraînant une situation dangereuse ! Danger de mort ! Ne séjournez pas dans la zone de mouvement de machines et de composants de machines. Évitez tout accès accidentel de personnes. Avant toute intervention ou tout accès dans la zone de danger, assurez-vous de l'arrêt préalable de tous les entraînements.
⚠ WARNING Elektromagnetische / magnetische Felder! Gesundheitsgefahr für Personen mit Herzschrittmachern, metallischen Implantaten oder Hörgeräten! Zutritt zu Bereichen, in denen Antriebskomponenten montiert und betrieben werden, ist für oben genannten Personen untersagt bzw. nur nach Rücksprache mit einem Arzt erlaubt.	⚠ WARNING Electromagnetic / magnetic fields! Health hazard for persons with heart pacemakers, metal implants or hearing aids! The above-mentioned persons are not allowed to enter areas in which drive components are mounted and operated, or rather are only allowed to do this after they consulted a doctor.	⚠ AVERTISSEMENT Champs électromagnétiques / magnétiques ! Risque pour la santé des porteurs de stimulateurs cardiaques, d'implants métalliques et d'appareils auditifs ! L'accès aux zones où sont montés et exploités les composants d'entraînement est interdit aux personnes susmentionnées ou bien ne leur est autorisé qu'après consultation d'un médecin.
⚠ VORSICHT Heiße Oberflächen (> 60 °C)! Verbrennungsgefahr! Vermeiden Sie das Berühren von metallischen Oberflächen (z. B. Kühlkörpern). Abkühlzeit der Antriebskomponenten einhalten (mind. 15 Minuten).	⚠ CAUTION Hot surfaces (> 60 °C [140 °F])! Risk of burns! Do not touch metallic surfaces (e.g. heat sinks). Comply with the time required for the drive components to cool down (at least 15 minutes).	⚠ ATTENTION Surfaces chaudes (> 60 °C)! Risque de brûlure ! Évitez de toucher des surfaces métalliques (p. ex. dissipateurs thermiques). Respectez le délai de refroidissement des composants d'entraînement (au moins 15 minutes).

D Deutsch	USA English	F Français
⚠ VORSICHT Unsachgemäße Handhabung bei Transport und Montage! Verletzungsgefahr! Verwenden Sie geeignete Montage- und Transporteinrichtungen. Benutzen Sie geeignetes Werkzeug und persönliche Schutzausrüstung.	⚠ CAUTION Improper handling during transport and mounting! Risk of injury! Use suitable equipment for mounting and transport. Use suitable tools and personal protective equipment.	⚠ ATTENTION Manipulation incorrecte lors du transport et du montage ! Risque de blessure ! Utilisez des dispositifs de montage et de transport adéquats. Utilisez des outils appropriés et votre équipement de protection personnel.
⚠ VORSICHT Unsachgemäße Handhabung von Batterien! Verletzungsgefahr! Versuchen Sie nicht, leere Batterien zu reaktivieren oder aufzuladen (Explosions- und Verätzungsgefahr). Zerlegen oder beschädigen Sie keine Batterien. Werfen Sie Batterien nicht ins Feuer.	⚠ CAUTION Improper handling of batteries! Risk of injury! Do not attempt to reactivate or recharge low batteries (risk of explosion and chemical burns). Do not dismantle or damage batteries. Do not throw batteries into open flames.	⚠ ATTENTION Manipulation incorrecte de piles! Risque de blessure! N'essayez pas de réactiver des piles vides ou de les charger (risque d'explosion et de brûlure par acide). Ne désassemblez et n'endommagez pas les piles. Ne jetez pas des piles dans le feu.

E Español	P Português	I Italiano
⚠ ADVERTENCIA ¡Peligro de muerte en caso de no observar las siguientes indicaciones de seguridad! Los productos no se pueden poner en servicio hasta después de haber leído por completo, comprendido y tenido en cuenta la documentación y las advertencias de seguridad que se incluyen en la entrega. Si no dispusiera de documentación en el idioma de su país, diríjase a su distribuidor competente de Rexroth. Solo el personal debidamente cualificado puede trabajar en componentes de accionamiento. Encontrará más detalles sobre las indicaciones de seguridad en el capítulo 1 de esta documentación.	⚠ ATENÇÃO Perigo de vida em caso de inobservância das seguintes instruções de segurança! Utilize apenas os produtos depois de ter lido, compreendido e tomado em consideração a documentação e as instruções de segurança fornecidas juntamente com o produto. Se não tiver disponível a documentação na sua língua, dirija-se ao seu parceiro de venda responsável da Rexroth. Apenas pessoal qualificado pode trabalhar nos componentes de acionamento. Explicações mais detalhadas relativamente às instruções de segurança constam no capítulo 1 desta documentação.	⚠ AVVERTENZA Pericolo di morte in caso di inosservanza delle seguenti indicazioni di sicurezza! Mettere in funzione i prodotti solo dopo aver letto, compreso e osservato per intero la documentazione e le indicazioni di sicurezza fornite con il prodotto. Se non dovesse essere presente la documentazione nella vostra lingua, siete pregati di rivolgervi al rivenditore Rexroth competente. Solo personale qualificato può eseguire lavori sui componenti di comando. Per ulteriori spiegazioni riguardanti le indicazioni di sicurezza consultare il capitolo 1 di questa documentazione.
⚠ ADVERTENCIA ¡Alta tensión eléctrica! ¡Peligro de muerte por descarga eléctrica! Active sólo los componentes de accionamiento con el conductor protector firmemente instalado. Desconecte la alimentación eléctrica antes de manipular los componentes de accionamiento. Tenga en cuenta los tiempos de descarga de los condensadores.	⚠ ATENÇÃO Alta tensão elétrica! Perigo de vida devido a choque elétrico! Opere componentes de acionamento apenas com condutores de proteção instalados. Desligue a alimentação de tensão antes de aceder aos componentes de acionamento. Respeite os períodos de descarga dos condensadores.	⚠ AVVERTENZA Alta tensione elettrica! Pericolo di morte in seguito a scosse elettriche! Mettere in esercizio i componenti di comando solo con conduttore di messa a terra ben installato. Staccare l'alimentazione prima di intervenire sui componenti di comando. Osservare i tempi di scarica del condensatore.
⚠ ADVERTENCIA ¡Movimientos peligrosos! ¡Peligro de muerte! No permanezca en la zona de movimiento de las máquinas ni de sus piezas. Impida el acceso accidental de personas. Antes de acceder o introducir las manos en la zona de peligro, los accionamientos se tienen que haber parado con seguridad.	⚠ ATENÇÃO Movimentos perigosos! Perigo de vida! Não permaneça na área de movimentação das máquinas e das peças das máquinas. Evite o acesso involuntário para pessoas. Antes de entrar ou aceder à área perigosa, imobilize os acionamentos de forma segura.	⚠ AVVERTENZA Movimenti pericolosi! Pericolo di morte! Non sostare nelle zone di manovra delle macchine e delle loro parti. Impedire un accesso non autorizzato per le persone. Prima di accedere alla zona di pericolo, arrestare e bloccare gli azionamenti.

E Español	P Português	I Italiano
⚠ ADVERTENCIA ¡Campos electromagnéticos/magnéticos! ¡Peligro para la salud de las personas con marcapasos, implantes metálicos o audífonos! El acceso de las personas arriba mencionadas a las zonas de montaje o funcionamiento de los componentes de accionamiento está prohibido, salvo que lo autorice previamente un médico.	⚠ ATENÇÃO Campos eletromagnéticos / magnéticos! Perigo de saúde para pessoas com marcapassos, implantes metálicos ou aparelhos auditivos! Acesso às áreas, nas quais os componentes de acionamento são montados e operados, é proibido para as pessoas em cima mencionadas ou apenas após permissão de um médico.	⚠ AVVERTENZA Campi elettromagnetici / magnetici! Pericolo per la salute delle persone portatrici di pacemaker, protesi metalliche o apparecchi acustici! L'accesso alle zone in cui sono installati o in funzione componenti di comando è vietato per le persone sopra citate o consentito solo dopo un colloquio con il medico.
⚠ ATENCIÓN ¡Superficies calientes (> 60 °C)! ¡Peligro de quemaduras! Evite el contacto con las superficies calientes (p. ej., disipadores de calor). Observe el tiempo de enfriamiento de los componentes de accionamiento (mín. 15 minutos).	⚠ CUIDADO Superfícies quentes (> 60 °C)! Perigo de queimaduras! Evite tocar superfícies metálicas (p. ex. radiadores). Respeite o tempo de arrefecimento dos componentes de acionamento (mín. 15 minutos).	⚠ ATTENZIONE Superfici bollenti (> 60 °C)! Pericolo di ustioni! Evitare il contatto con superfici metalliche (ad es. dissipatori di calore). Rispettare i tempi di raffreddamento dei componenti di comando (almeno 15 minuti).
⚠ ATENCIÓN ¡Manipulación inadecuada en el transporte y montaje! ¡Peligro de lesiones! Utilice dispositivos de montaje y de transporte adecuados. Utilice herramientas adecuadas y equipo de protección personal.	⚠ CUIDADO Manejo incorreto no transporte e montagem! Perigo de ferimentos! Utilize dispositivos de montagem e de transporte adequados. Utilize ferramentas e equipamento de proteção individual adequados.	⚠ ATTENZIONE Manipolazione inappropriata durante il trasporto e il montaggio! Pericolo di lesioni! Utilizzare dispositivi di montaggio e trasporto adatti. Utilizzare attrezzi adatti ed equipaggiamento di protezione personale.
⚠ ATENCIÓN ¡Manejo inadecuado de las pilas! ¡Peligro de lesiones! No trate de reactivar o cargar pilas descargadas (peligro de explosión y cauterización). No desarme ni dañe las pilas. No tire las pilas al fuego.	⚠ CUIDADO Manejo incorreto de baterias! Perigo de ferimentos! Não tente reativar nem carregar baterias vazias (perigo de explosão e de queimaduras com ácido). Não desmonte nem danifique as baterias. Não deite as baterias no fogo.	⚠ ATTENZIONE Utilizzo inappropriato delle batterie! Pericolo di lesioni! Non tentare di riattivare o ricaricare batterie scariche (pericolo di esplosione e corrosione). Non scomporre o danneggiare le batterie. Non gettare le batterie nel fuoco.

S Svenska	DK Dansk	NL Nederlands
⚠ VARNING Livsfara om följande säkerhetsanvisningar inte följs! Använd inte produkterna innan du har läst och förstått den dokumentation och de säkerhetsanvisningar som medföljer produkten, och följ alla anvisningar. Kontakta din Rexroth-återförsäljare om dokumentationen inte medföljer på ditt språk. Endast kvalificerad personal får arbeta med drivkomponenterna. Se kapitel 1 i denna dokumentation för närmare beskrivningar av säkerhetsanvisningarna.	⚠ ADVARSEL Livsfare ved manglende overholdelse af nedenstående sikkerhedsanvisninger! Tag ikke produktet i brug, før du har læst og forstået den dokumentation og de sikkerhedsanvisninger, som følger med produktet, og overhold de givne anvisninger. Kontakt din Rexroth-forhandler, hvis dokumentationen ikke medfølger på dit sprog. Det er kun kvalificeret personale, der må arbejde på drive components. Nærmere forklaringer til sikkerhedsanvisningerne fremgår af kapitel 1 i denne dokumentation.	⚠ WAARSCHUWING Levensgevaar bij niet-naleving van onderstaande veiligheidsinstructies! Stel de producten pas in bedrijf nadat u de met het product geleverde documenten en de veiligheidsinformatie volledig gelezen, begrepen en in acht genomen heeft. Mocht u niet beschikken over documenten in uw landstaal, kunt u contact opnemen met uw plaatselijke Rexroth distributiepartner. Uitsluitend gekwalificeerd personeel mag aan de aandrijvingscomponenten werken. Meer informatie over de veiligheidsinstructies vindt u in hoofdstuk 1 van deze documentatie.
⚠ VARNING Hög elektrisk spänning! Livsfara genom elchock! Använd endast drivkomponenterna med fastmonterad skyddsledare. Koppla bort spänningsförsörjningen före arbete på drivkomponenter. Var medveten om kondensatorernas urladdningstid.	⚠ ADVARSEL Elektrisk højspænding! Livsfare på grund af elektrisk stød! Drive components må kun benyttes med et fast installeret jordstik. Sørg for at koble spændingsforsyningen fra, inden du rører ved drive components. Overhold kondensatorernes afladningstider.	⚠ WAARSCHUWING Hoge elektrische spanning! Levensgevaar door elektrische schok! Bedien de aandrijvingscomponenten uitsluitend met vast geïnstalleerde aardleiding. Schakel voor toegang tot aandrijvingscomponenten de spanningsvoorziening uit. Neem de ontladtijden van condensatoren in acht.

S Svenska	DK Dansk	NL Nederlands
⚠️ VARNING Farliga rörelser! Livsfara! Uppehåll dig inte inom maskiners och maskindelarars rörelseområde. Förhindra att obehöriga personer får tillträde. Innan du börjar arbeta eller vistas inom drivsystemets riskområde måste maskinen vara stillastående.	⚠️ ADVARSEL Farlige bevægelser! Livsfare! Du må ikke opholde dig inden for maskiners og maskindeles bevægelsesradius. Sørg for, at ingen personer kan få utilsigtet adgang. Stands drevene helt, inden du rører ved drevene eller træder ind i deres fareområde.	⚠️ WAARSCHUWING Risicovolle bewegingen! Levensgevaar! Houdt u niet op in het bewegingsbereik van machines en machineonderdelen. Voorkom dat personen onbedoeld toegang verkrijgen. Voor toegang tot de gevaarlijke zone moeten de aandrijvingen veilig tot stilstand gebracht zijn.
⚠️ VARNING Elektromagnetiska/magnetiska fält! Hälsofara för personer med pacemaker, implantat av metall eller hörapparat! Det är förbjudet för ovan nämnda personer (eller kräver överläggning med läkare) att beträda områden där drivkomponenter är monterade och i drift.	⚠️ ADVARSEL Elektromagnetiske/magnetiske felter! Sundhedsfare for personer med pacemakere, metalliske implantater eller høreapparater! For disse personer er der adgang forbudt eller kun adgang med tilladelse fra læge til de områder, hvor drive components monteres og drives.	⚠️ WAARSCHUWING Elektromagnetische / magnetische velden! Gevaar voor de gezondheid van personen met pacemakers, metalen implantaten of hoorapparaten! Toegang tot gebieden, waarin aandrijvingscomponenten worden gemonteerd en bediend, is verboden voor voornoemde personen of uitsluitend toegestaan na overleg met een arts.
⚠️ OBSERVERA Varma ytor (> 60 °C)! Risk för brännskador! Undvik att vidröra metallytor (t.ex. kylelement). Var medveten om att det tar tid för drivkomponenterna att svalna (minst 15 minuter).	⚠️ FORSIGTIG Varme overflader (> 60 °C)! Risiko for forbrændinger! Undgå at berøre metaloverflader (f.eks. køleelementer). Overhold drive components nedkølingstid (min. 15 min.).	⚠️ VOORZICHTIG Hete oppervlakken (> 60 °C)! Verbrandingsgevaar! Voorkom contact met metalen oppervlakken (bijv. Koellichamen). Afkoeltijd van de aandrijvingscomponenten in acht nemen (min. 15 minuten).
⚠️ OBSERVERA Felaktig hantering vid transport och montering! Skaderisk! Använd passande monterings- och transportanordningar. Använd lämpliga verktyg och personlig skyddsutrustning.	⚠️ FORSIGTIG Fejlhåndtering ved transport og montering! Risiko for kvæstelser! Benyt egnede monterings- og transportanordninger. Benyt egnet værktøj og personligt sikkerhedsudstyr.	⚠️ VOORZICHTIG Onjuist gebruik bij transport en montage! Letselgevaar! Gebruik geschikte montage- en transportinrichtingen. Gebruik geschikt gereedschap en een persoonlijke veiligheidsuitrusting.
⚠️ OBSERVERA Felaktig hantering av batterier! Skaderisk! Försök inte återaktivera eller ladda upp batterier (risk för explosioner och frätskador). Batterierna får inte tas isär eller skadas. Släng inte batterierna i elden.	⚠️ FORSIGTIG Fejlhåndtering af batterier! Risiko for kvæstelser! Forsøg ikke at genaktivere eller oplade tomme batterier (eksplosions- og ætsningsfare). Undlad at skille batterier ad eller at beskadige dem. Smid ikke batterier ind i åben ild.	⚠️ VOORZICHTIG Onjuist gebruik van batterijen! Letselgevaar! Probeer nooit lege batterijen te reactiveren of op te laden (explosiegevaar en gevaar voor beschadiging van weefsel door cauterisatie). Batterijen niet demonteren of beschadigen. Nooit batterijen in het vuur werpen.

FIN Suomi	PL Polski	CZ Český
VAROITUS Näiden turvaohjeiden noudattamatta jättämisestä on seurauksena hengenvaara! Ota tuote käyttöön vasta sen jälkeen, kun olet lukenut läpi tuotteen mukana toimitetut asiakirjat ja turvallisuusohjeet, ymmärtänyt ne ja ottanut ne huomioon. Jos asiakirjoja ei ole saatavana omalla äidinkielelläsi, ota yhteys asianomaiseen Rexrothin myyntiedustajaan. Käyttölaitteiden komponenttien parissa saa työskennellä ainoastaan valtuutettu henkilöstö. Lisätietoa turvaohjeista löydät tämän dokumentaation luvusta 1.	OSTRZEŻENIE Zagrożenie życia w razie nieprzestrzegania poniższych wskazówek bezpieczeństwa! Nie uruchamiać produktów przed uprzednim przeczytaniem i pełnym zrozumieniem wszystkich dokumentów dostarczonych wraz z produktem oraz wskazówek bezpieczeństwa. Należy przestrzegać wszystkich zawartych tam zaleceń. W przypadku braku dokumentów w Państwa języku, prosimy o skontaktowanie się z lokalnym partnerem handlowym Rexroth. Przy zespołach napędowych może pracować wyłącznie wykwalifikowany personel. Blizsze objaśnienia wskazówek bezpieczeństwa znajdują się w Rozdziale 1 niniejszej dokumentacji.	VAROVÁNÍ Nebezpečí života v případě nedodržení níže uvedených bezpečnostních pokynů! Před uvedením výrobků do provozu si přečtěte kompletní dokumentaci a bezpečnostní pokyny dodávané s výrobkem, pochopte je a dodržujte. Nemáte-li k dispozici podklady ve svém jazyce, obraťte se na příslušného obchodního partnera Rexroth. Na komponentách pohonu smí pracovat pouze kvalifikovaný personál. Podrobnější vysvětlení k bezpečnostním pokynům naleznete v kapitole 1 této dokumentace.
VAROITUS Voimakas sähköjännite! Sähköiskun aiheuttama hengenvaara! Käytä käyttölaitteen komponentteja ainoastaan maadoitusjohtimen ollessa kiinteästi asennettuna. Katkaise jännitteensyöttö ennen käyttölaitteen komponenteille suoritettavien töiden aloittamista. Huomioi kondensaattoreiden purkausajat.	OSTRZEŻENIE Wysokie napięcie elektryczne! Zagrożenie życia w wyniku porażenia prądem! Zespoły napędu mogą być eksploatowane wyłącznie z zainstalowanym na stałe przewodem ochronnym. Przed uzyskaniem dostępu do podzespołów napędu należy odłączyć zasilanie elektryczne. Zwracać uwagę na czas rozładowania kondensatorów.	VAROVÁNÍ Vysoké elektrické napětí! Nebezpečí života při zasažení elektrickým proudem! Komponenty pohonu smí být v provozu pouze s pevně nainstalovaným ochranným vodičem. Než začnete zasahovat do komponent pohonu, odpojte je od elektrického napájení. Dodržujte vybíjecí časy kondenzátorů.
VAROITUS Vaarallisia liikkeitä! Hengenvaara! Älä oleskele koneiden tai koneenosien liikealueella. Pidä huolta siitä, ettei muita henkilöitä pääse alueelle vahingossa. Pysäytä käyttölaitteet varmasti ennen vaara-alueelle koskemista tai menemistä.	OSTRZEŻENIE Niebezpieczne ruchy! Zagrożenie życia! Nie wolno przebywać w obszarze pracy maszyny i jej elementów. Nie dopuszczać osób niepowołanych do obszaru pracy maszyny. Przed dotknięciem urządzenia/maszyny lub zbliżeniem się do obszaru zagrożenia należy zgodnie z zasadami bezpieczeństwa wyłączyć napędy.	VAROVÁNÍ Nebezpečné pohyby! Nebezpečí života! Nezdržujte se v dosahu pohybu strojů a jejich součástí. Zabraňte náhodnému přístupu osob. Před zásahem nebo vstupem do nebezpečného prostoru bezpečně zastavte pohony.
VAROITUS Sähkömagneettisia/ magneettisia kenttiä! Terveystieteiden haavojen vaara henkilölle, joilla on sydämentahdistin, metallinen implantti tai kuulolaite! Yllä mainituilta henkilöiltä on pääsy kielletty alueelle, joilla asennetaan tai käytetään käyttölaitteen komponentteja, tai heidän on ensin saatava tähän suostumus lääkäriltään.	OSTRZEŻENIE Pola elektromagnetyczne / magnetyczne! Zagrożenie zdrowia dla osób z rozrusznikiem serca, metalowymi implantami lub aparatami słuchowymi! Wstęp na teren, gdzie odbywa się montaż i eksploatacja napędów jest dla ww. osób zabroniony względnie dozwolony po konsultacji z lekarzem.	VAROVÁNÍ Elektromagnetická/ magnetická pole! Nebezpečí pro zdraví osob s kardiostimulátory, kovovými implantáty nebo naslouchadly! Výše uvedené osoby mají zakázán přístup do prostorů, kde jsou montovány a používány komponenty pohonu, resp. ho mají povolen pouze po poradě s lékařem.
HUOMIO Kuumia pintoja (> 60 °C)! Palovammojen vaara! Vältä metallipintojen koskettamista (esim. jäähdytyslevyt). Noudata käyttölaitteen komponenttien jäähdytysaikoja (väh. 15 minuuttia).	PRZESTROGA Gorące powierzchnie (> 60 °C)! Niebezpieczeństwo poparzenia! Unikać kontaktu z powierzchniami metalowymi (np. radiatorami). Przestrzegać czasów schładzania podzespołów napędów (min. 15 minut).	UPOZORNĚNÍ Horké povrchy (> 60 °C)! Nebezpečí popálení! Nedotýkejte se kovových povrchů (např. chladičů těles). Dodržujte dobu ochlazení komponent pohonu (min. 15 minut).

FIN Suomi	PL Polski	CZ Český
▲HUOMIO Epäasianmukainen käsittely kuljetuksen ja asennuksen yhteydessä! Loukkaantumisaara! Käytä soveltuvia asennus- ja kuljetuslaitteita. Käytä omia työkaluja ja henkilökohtaisia suojavarusteita.	▲PRZESTROGA Niewłaściwe obchodzenie się podczas transportu i montażu! Ryzyko urazu! Stosować odpowiednie urządzenia montażowe i transportowe. Stosować odpowiednie narzędzia i środki ochrony osobistej.	▲UPOZORNĚNÍ Nesprávné zacházení při přepravě a montáži! Nebezpečí zranění! Používejte vhodná montážní a dopravní zařízení. Používejte vhodné nářadí a osobní ochranné vybavení.
▲HUOMIO Paristojen epäasianmukainen käsittely! Loukkaantumisaara! Älä yritä saada tyhjiä paristoja toimimaan tai ladata niitä uudelleen (räjähdys- ja syöpymisaara). Älä hajota paristoja osiin tai vaurioita niitä. Älä heitä paristoja tulleen.	▲PRZESTROGA Niewłaściwe obchodzenie się z bateriami! Ryzyko urazu! Nie próbować reaktywować i nie ładować zużytych baterii (niebezpieczeństwo wybuchu oraz poparzenia żrącą substancją). Nie demontować i nie niszczyć baterii. Nie wrzucać baterii do ognia.	▲UPOZORNĚNÍ Nesprávné zacházení s bateriemi! Nebezpečí zranění! Nepokoušejte se znovu aktivovat nebo dobíjet prázdné baterie (nebezpečí výbuchu a poleptání). Nerozebírejte ani nepoškozujte baterie. Neházejte baterie do ohně.

SLO Slovensko	SK Slovenčina	RO Română
▲OPOZORILO Življenjska nevarnost pri neupoštevanju naslednjih napotkov za varnost! Izdelke začnite uporabljati šele, ko v celoti preberete, razumete in upoštevate izdelkom priloženo dokumentacijo in varnostne napotke. Če priložena dokumentacija ni na voljo v vašem maternem jeziku, se obrnite na pristojnega distributerja Rexroth. Samo kvalificirano osebje sme delati na pogonskih komponentah. Podrobnejša pojasnila o varnostnih navodilih najdete v poglavju 1 v tej dokumentaciji.	▲VAROVANJE Nebezpečnostvno ohrotenje života pri nedodržiavanju naslednjih varnostnih priporočil! Výrobky uvádzajte do prevádzky až potom, čo ste úplne prečítali, pochopili a zobrali do úvahy podklady a bezpečnostné pokyny dodané s výrobkom. Ak by ste nemali k dispozícii žiadne podklady v jazyku svojej krajiny, obráťte sa prosím na svojho príslušného predajcu Rexroth. Na komponentoch pohonu smie pracovať iba kvalifikovaný personál. Bližšie vysvetlenia k bezpečnostným pokynom zistíte z kapitoly 1 tejto dokumentácie.	▲AVERTIZARE Pericol de moarte în cazul nerespectării următoarelor instrucțiuni de siguranță! Punerea în funcțiune a produselor trebuie efectuată după citirea, înțelegerea și respectarea documentelor și instrucțiunilor de siguranță, care sunt livrate împreună cu produsele. În cazul în care documentele nu sunt în limba dumneavoastră maternă, vă rugăm să contactați partenerul de vânzări Rexroth. Numai un personal calificat poate lucra cu componentele de acționare. Explicații detaliate privind instrucțiunile de siguranță găsiți în capitolul 1 al acestei documentații.
▲OPOZORILO Visoka električna napetost! Življenjska nevarnost zaradi električnega udara! Pogonske komponente uporabljajte samo s fiksno nameščenim zaščitnim vodnikom. Pred dostopom do pogonske komponente odklopite napajanje. Upoštevajte čase praznjenja kondenzatorjev.	▲VAROVANJE Vysoké elektrické napätie! Nebezpečnostvno ohrotenie života v dôsledku zásahu elektrickým prúdom! Komponenty pohonu prevádzkujte iba s pevne nainštalovaným ochranným vodičom. Pred prístupom na komponenty pohonu odpojte zdroj napätia. Rešpektujte časy vybitia kondenzátorov.	▲AVERTIZARE Tensiune electrică înaltă! Pericol de moarte prin electrocutare! Exploatați componentele de acționare numai cu împământarea instalată permanent. Înainte de intervenția asupra componentelor de acționare, deconectați alimentarea cu tensiune electrică. Țineți cont de timpii de descărcare ai condensatorilor.
▲OPOZORILO Nevami premikil! Življenjska nevarnost! Ne zadržujte se v območju delovanja strojev. Preprečite nenadzorovan dostop oseb. Pred prijemom ali dostopom v nevarno območje varno zaustavite vse gnane dele.	▲VAROVANJE Pohyby prinášajúce nebezpečnostvno! Nebezpečnostvno ohrotenie života! Nezdržujte sa v oblasti pohybu strojov a častí strojov. Zabráňte nepovolanému prístupu osôb. Pred zásahom alebo prístupom do nebezpečnej oblasti uveďte pohony bezpečne do zastavenia.	▲AVERTIZARE Mișcări periculoase! Pericol de moarte! Nu staționați în zona de mișcare a mașinilor și a componentelor în mișcare a mașinilor. Împiedicați accesul neintenționat al persoanelor în zona de lucru a mașinilor. Înainte de intervenția sau accesul în zona periculoasă, opriți în siguranță componentele de acționare.

SLO Slovensko	SK Slovenčina	RO Română
▲ OPOZORILO Elektromagnetna / magnetna polja! Nevarnost za zdravje za osebe s spodbujevalniki srca, kovinskimi vsadki ali slušnimi aparati! Dostop do območij, v katerih so nameščene delujoče pogonske komponente, je za zgoraj navedene osebe prepovedan oz. dovoljen samo po posvetu z zdravnikom.	▲ VAROVANIE Elektromagnetické/ magnetické polia! Nebezpečenstvo pre zdravie osôb s kardioštimulátormi, kovovými implantátmi alebo načúvacími prístrojmi! Prístup k oblastiam, v ktorých sú namontované a prevádzkujú sa komponenty pohonu, je pre hore uvedené osoby zakázaný resp. je dovolený iba po konzultácii s lekárom.	▲ AVERTIZARE Câmpuri electromagnetice / magnetice! Pericol pentru sănătatea persoanelor cu stimulatore cardiace, implanturi metalice sau aparate auditive! Intrarea în zone, în care se montează sau se exploatează componente de acționare, este interzisă pentru persoanele sus numite respectiv este permisă numai cu acordul medicului.
▲ POZOR Vroče površine (> 60 °C)! Nevarnost opeklin! Izogibajte se stiku s kovinskimi površinami (npr. hladilnimi telesii). Upoštevajte čas hlajenja pogonskih komponent (najm. 15 minut).	▲ UPOZORNENIE Horúce povrchy (> 60 °C)! Nebezpečenstvo popálenia! Zabráňte kontaktu s kovovými povrchmi (napr. chladiacimi telesami). Dodržiavajte čas vychladenia komponentov pohonu (min. 15 minút).	▲ ATENȚIE Suprafețe fierbinți (> 60 °C)! Pericol de arsuri! Nu atingeți suprafețele metalice (de ex. radiatoare de răcire). Respectați timpii de răcire ai componentelor de acționare (min. 15 minute).
▲ POZOR Nestrokovno ravnanje med transportom in nameštivjo! Nevarnost poškodb! Uporablajte ustrezne pripomočke za nameščanje in transport. Uporabite ustrezno orodje in osebno zaščitno opremo.	▲ UPOZORNENIE Neodborná manipulácia pri transporte a montáži! Nebezpečenstvo poranenia! Používajte vhodné montážne a transportné zariadenia. Používajte vhodné náradie a osobné ochranné prostriedky.	▲ ATENȚIE Manipulare necorespunzătoare la transport și montaj! Pericol de vătămare! Utilizați dispozitive adecvate de montaj și transport. Folosiți instrumente corespunzătoare și echipament personal de protecție.
▲ POZOR Nepravilno ravnanje z baterijami! Nevarnost poškodb! Ne poskušajte ponovno aktivirati ali napolniti praznih baterij (Nevarnost zaradi eksplozije ali jedkanja). Ne razstavljajte ali poškodujte nobenih baterij. Baterij ne mečite v ogenj.	▲ UPOZORNENIE Neodborná manipulácia s batériami! Nebezpečenstvo poranenia! Nepokúšajte sa reaktivovať alebo nabíjať prázdne batérie (nebezpečenstvo výbuchu a poleptania). Batérie nerozoberajte ani nepoškodzuje. Nehádzte batérie do ohňa.	▲ ATENȚIE Manipulare necorespunzătoare a bateriilor! Pericol de vătămare! Nu încercați să reactivați sau să încărcăți bateriile goale (pericol de explozie și pericol de arsuri). Nu dezasmblați și nu deteriorați bateriile. Nu aruncați bateriile în foc.

H Magyar	BG Български	LV Latviski
▲ FIGYELMEZTETÉS! Az alábbi biztonsági útmutatások figyelmen kívül hagyása életveszélyes helyzethez vezethet! Üzembe helyezés előtt olvassa el, értelmezze, és vegye figyelembe a csomagban található dokumentumban foglaltakat és a biztonsági útmutatásokat. Amennyiben a csomagban nem talál az Ön nyelvén írt dokumentumokat, vegye fel a kapcsolatot az illetékes Rexroth-képviselővel. A hajtás alkatrészein kizárólag képzett személy dolgozhat. A biztonsági útmutatókkal kapcsolatban további magyarázatot ennek a dokumentumnak az első fejezetében találhat.	▲ ПРЕДУПРЕЖДЕНИЕ Опасност за живота при неспазване на посочените подолу инструкции за безопасност! Използвайте продуктите след като сте се запознали подробно с приложената към продукта документация и указания за безопасност, разбрали сте ги и сте се съобразили с тях. Ако текстът не е написан на Вашия език, моля обърнете се към Вашия компетентен търговски представител на Rexroth. Със задвижващите компоненти трябва да работи само квалифициран персонал. Подробни пояснения към инструкциите за безопасност можете да видите в Глава 1 на тази документация.	▲ BRĪDINĀJUMS Turpinājumā doto drošības norādījumu neievērošana var apdraudēt dzīvību! Sāciet lietot izstrādājumu tikai pēc tam, kad esat pilnībā izlasījuši, sapratuši un iemēruši vērā kopā ar izstrādājumu piegādātos dokumentus. Ja dokumenti nav pieejami Jūsu valsts valodā, vērsieties pie pilnvarotā Rexroth izplatītāja. Darbus pie piedziņas komponentiem drīkst veikt tikai kvalificēts personāls. Detalizētus paskaidrojumus attiecībā uz drošības norādījumiem skatiet šī dokumenta 1. nodaļā.
▲ FIGYELMEZTETÉS! Magas elektromos feszültség! Életveszély áramütés miatt! A hajtás alkatrészeit csak véglegesen telepített védővezetővel üzemeltesse! Mielőtt hozzányúl a hajtás alkatrészeihez, kapcsolja ki az áramellátást. Ügyeljen a kondenzátorok kisülési idejére!	▲ ПРЕДУПРЕЖДЕНИЕ Високо електрическо напрежение! Опасност за живота от удар от електрически ток! Работете със задвижващите компоненти само при здраво закрепен заземяващ проводник. Преди работа по задвижващите компоненти, изключете захранващото напрежение. Обърнете внимание на времето за разреждане на кондензаторите.	▲ BRĪDINĀJUMS Augsts elektriskais spriegums! Dzīvības apdraudējums elektriskā trieciena dēļ! Piedziņas komponentus darbiniet tikai ar fiksēti uzstādītu zemējumvadu. Pirms darba pie piedziņas komponentiem atslēdziet elektroapgādi. Nemiet vērā kondensatoru izlādes laikus.

H Magyar	BG Български	LV Latviski
▲ FIGYELMEZTETÉS! Veszélyes mozgás! Életveszély! Ne tartózkodjon a gépek és a gépalkatrészek mozgási területén belül! Illetéktelen személyeket ne engedjen a gép közelébe! Mielőtt beavatkozik, vagy a veszélyes zónába belép a hajtásokat biztonságosan állítsa le.	▲ ПРЕДУПРЕЖДЕНИЕ Опасни движения! Опасност за живота! Не стойте в обсега на движение на машините и частите на машините. Не допускайте непреднамерен достъп на хора. Преди работа или влизане в опасната зона, спрете надеждно приводния механизъм.	▲ BRĪDINĀJUMS Bīstamas kustības! Dzīvības apdraudējums! Neuzturieties mašīnu un mašīnas detaļu kustību zonā. Novērsiet nepiederošu personu piekļūšanu. Pirms darba bīstamajās zonās pilnībā apstādiniet piedziņu.
▲ FIGYELMEZTETÉS! Elektromágneses / mágneses mező! Káros hatással lehet a szívritmus-szabályozó készülékkel, fémbeültetéssel vagy hallókészülékkel rendelkezők egészségére! Azokra a területekre, ahol hajtások alkatrészeit szerelik és üzemeltetik, a fent említett személyeknek tilos a belépés, illetve csak orvosi konzultációt követően szabad az adott területekre lépniük.	▲ ПРЕДУПРЕЖДЕНИЕ Електромагнитни / магнитни полета! Опасност за здравето на хора със сърдечни стимулатори, метални импланти или слухови апарати! Достъпът за гореспоменатите лица до зони, в които ще се монтират и ще работят задвижващи компоненти се забранява, или разрешава само след консултация с лекар.	▲ BRĪDINĀJUMS Elektromagnētiskais / magnētiskais lauks! Veselības apdraudējums personām ar sirds stimulatoriem, metāliskiem implantiem vai dzirdes aparātiem! Tuvošanās zonām, kurās tiek montēti un darbināti piedziņas komponenti, iepriekš minētajām personām ir aizliegta, respektīvi, atļauta tikai pēc konsultēšanās ar ārstu.
▲ VIGYÁZAT! Forró felületek (> 60 °C)! Égésveszély! Ne érjen hozzá fémfelületekhez (pl. hűtőtestekhez)! Vegye figyelembe a hajtás alkatrészeinek kihűlési idejét (min. 15 perc)!	▲ ВНИМАНИЕ Горещи повърхности (> 60 °C)! Опасност от изгаряне! Не докосвайте метални повърхности (например радиатори). Съблюдавайте времето на охлаждане на задвижващите компоненти (мин. 15 минути).	▲ UZMANĪBU Karstas virsmas (> 60 °C)! Apdedzināšanās risks! Neskarieties pie metāliskām virsmām (piemēram, dzesētāja). Ļaujiet piedziņas komponentiem atdzist (min. 15 minūtes).
▲ VIGYÁZAT! Szakszerűtlen kezelés szállításkor és szereléskor! Sérülésveszély! A megfelelő beszerelési és szállítási eljárásokat alkalmazza! Használjon megfelelő szerszámokat és személyes védőfelszerelést!	▲ ВНИМАНИЕ Неправилно боравене по време на транспорт и монтаж! Опасност от нараняване! Използвайте подходящо монтажно и транспортно оборудване. Използвайте подходящи инструменти и лични предпазни средства.	▲ UZMANĪBU Nepareizi veikta transportēšana un montāža! Traumu gūšanas risks! Izmantojiet piemērotas montāžas un transportēšanas ierīces. Izmantojiet piemērotus instrumentus un individuālos aizsardzības līdzekļus.
▲ VIGYÁZAT! Akkumulátorok szakszerűtlen kezelése! Sérülésveszély! Üres akkumulátorokat ne aktiváljon újra, illetve ne töltsön fel (robbanás- és marásveszély)! Az akkumulátorokat ne szedje szét, és ne rongálja meg! Az akkumulátort ne dobja tűzbe!	▲ ВНИМАНИЕ Неправилно боравене с батерии! Опасност от нараняване! Не се опитвайте да активирате отново или да зареждате разредени батерии (Опасност от експлозия и напръскване с агресивен агент). Не разглобявайте и не повреждайте батерии. Не хвърляйте батерии в огън.	▲ UZMANĪBU Nepareiza bateriju lietošana! Traumu gūšanas risks! Nemēģiniet no jauna aktivizēt vai uzlādēt tukšas baterijas (eksploziju un ķīmisko apdegumu draudi). Neizjauciet un nesabojājiēt baterijas. Nemetiet baterijas ugunī.

LT Lietuviškai	EST Eesti	GR Ελληνικά
⚠️ ĮSPĖJIMAS Pavojus gyvybei nesilaikant toliau pateikiamų saugumo nurodymų! Naudokite gaminį tik kruopščiai perskaitę prie jo pridėtus aprašus, saugumo nurodymus. Susipažinkite su jais ir vadovaukitės naudodami gaminį. Jei Jūs negavote aprašo gimtąja kalba, kreipkitės į įgaliotus Rexroth atstovus. Prie pavaros komponentų leidžiama dirbti tik kvalifikuotam personalui. Išsamesnius saugumo nurodymų paaiškinimus rasite šios dokumentacijos 1 skyriuje.	⚠️ HOIATUS Alljärgnevatte ohutusjuhiste eiramine on eluohtlik! Võtke tooted kaiku alles siis, kui olete toodetega kaasasolevad materjalid ning ohutusjuhised täielikult läbi lugenud, neist aru saanud ja neid järginud. Kui Teil puuduvad emakeelsed materjalid, siis pöörduge Rexrothi kohaliku müügiesinduse poole. Ajamikomponentidega tohib töötada üksnes kvalifitseeritud personal. Täpsemad selgitusi ohutusjuhiste kohta leiate käesoleva dokumentatsiooni peatükist 1.	⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Κίνδυνος θανάτου σε περίπτωση μη συμμόρφωσης με τις παρακάτω οδηγίες ασφαλείας! Θέστε το προϊόν σε λειτουργία αφού διαβάσετε, κατανοήσετε και λάβετε υπόψη το σύνολο των οδηγιών ασφαλείας που το συνοδεύουν. Εάν δεν υπάρχει τεκμηρίωση στη γλώσσα σας, απευθυνθείτε σε εξουσιοδοτημένο αντιπρόσωπο της Rexroth. Μόνο εξειδικευμένο προσωπικό επιτρέπεται να χειρίζεται στοιχεία μετάδοσης κίνησης. Περαιτέρω επεξηγήσεις των οδηγιών ασφαλείας διατίθενται στο κεφάλαιο 1 της παρούσας τεκμηρίωσης.
⚠️ ĮSPĖJIMAS Aukšta elektros įtampa! Pavojus gyvybei dėl elektros smūgio! Pavaros komponentus eksploatuokite tik su fiksuotai instaliuotu apsauginiu laidu. Prieš priedami prie pavaros komponentų išjunkite maitinimo įtampą. Atsižvelkite į kondensatorių išsikrovimo trukmę.	⚠️ HOIATUS Kõrge elektripinge! Eluohtlik elektrilöögi tõttu! Käitage ajamikomponente üksnes püsivalt installeeritud maandusega. Lülitage enne ajamikomponentidega tööde alustamist toitepinge välja. Järgige kondensaatorite mahalaadumisaegu.	⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Υψηλή ηλεκτρική τάση! Κίνδυνος θανάτου από ηλεκτροπληξία! Θέτετε σε λειτουργία τα στοιχεία μετάδοσης κίνησης μόνο εφόσον έχει τοποθετηθεί καλά προστατευτικός αγωγός γείωσης. Πριν από οποιαδήποτε παρέμβαση, αποσυνδέστε την τροφοδοσία των στοιχείων μετάδοσης κίνησης. Λάβετε υπόψη τους χρόνους αποφόρτισης των πυκνωτών.
⚠️ ĮSPĖJIMAS Pavojingi judesiai! Pavojus gyvybei! Nebūkite mašinų ar jų dalių judėjimo zonoje. Neleiskite netyčia patekti asmenims. Prieš patekdam į pavojaus zoną saugiai išjunkite pavaras.	⚠️ HOIATUS Ohtlikud liikumised! Eluohtlik! Ärge viibige masina ja masinaosade liikumiskiirkonnas. Tõkestage inimeste ettekavatsematu sisenemine masina ja masinaosade liikumiskiirkonda. Tagage ajamite turvaline seiskamine enne ohupiirkonda juurdepääsu või sisenemist.	⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Επικίνδυνες τάσεις! Κίνδυνος θανάτου! Μην στέκεστε στην περιοχή κίνησης μηχανημάτων και εξαρτημάτων. Αποτρέπετε την τυχαία είσοδο ατόμων. Πριν από την παρέμβαση ή πρόσβαση στην περιοχή κινδύνου, μεριμνήστε για την ασφαλή ακινητοποίηση των συστημάτων μετάδοσης κίνησης.
⚠️ ĮSPĖJIMAS Elektromagnetiniai / magnetiniai laukai! Pavojus asmenų su širdies stimulatoriais, metaliniais implantais arba klausos aparatais sveikatai! Prieiga prie zonų, kuriose montuojami ir eksploatuojami pavaros komponentai, aukščiau nurodytiems asmenims yra draudžiama arba leistina tik pasitarus su gydytoju.	⚠️ HOIATUS Elektromagnetilised / magnetilised väljad! Terviseohtlik südamestimulaatorite, metallimplantaatide ja kuulmiseadmetega inimestele! Sisenemine piirkondadesse, kus toimub ajamikomponentide monteeringimine ja käitamine, on ülalnimetatud isikutele keelatud või lubatud üksnes pärast arstiga konsulteerimist.	⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Ηλεκτρομαγνητικά/ μαγνητικά πεδία! Κίνδυνος για την υγεία ατόμων με καρδιακούς βηματοδότες, μεταλλικά εμφυτεύματα ή συσκευές ακοής! Η είσοδος σε περιοχές όπου πραγματοποιείται συναρμολόγηση και λειτουργία στοιχείων μετάδοσης κίνησης απαγορεύεται στα προαναφερθέντα άτομα, εκτός αν τους έχει δοθεί σχετική άδεια κατόπιν συνεννόησης με γιατρό.
⚠️ PERSPĖJIMAS Karšti paviršiai (> 60 °C)! Nudegimo pavojus! Venkite liesti metalinius paviršius (pvz., radiatorių). Išlaikykite pavaros komponentų atvėsimo trukmę (bent 15 minučių).	⚠️ ETTEVAATUST Kuumad välispinnad (> 60 °C)! Põletusohut! Vältige metalsete välispindade (nt radiaatorid) puudutamist. Pidage kinni ajamikomponentide mahajahtumisajast (vähemalt 15 minutit).	⚠️ ΠΡΟΣΟΧΗ Καυτές επιφάνειες (> 60 °C)! Κίνδυνος εγκαύματος! Αποφεύγετε την επαφή με μεταλλικές επιφάνειες (π.χ. μονάδες ψύξης). Λάβετε υπόψη το χρόνο ψύξης των στοιχείων μετάδοσης κίνησης (τουλάχιστον 15 λεπτά).

LT Lietuviškai	EST Eesti	GR Ελληνικά
⚠ PERSPĒJIMAS Netinkamas darbas transportuojant ir montuojant! Susižalojimo pavojus! Naudokite tinkamus montavimo ir transportavimo įrenginius. Naudokite tinkamus įrankius ir asmens saugos priemonės.	⚠ ETTEVAATUST Asjatundmatu käsitsemine transportimisel ja montaažil! Vigastusoht! Kasutage sobivaid montaaži- ja transpordiseadiseid. Kasutage sobivaid tööriistu ja isiklikku kaitsevarustust.	⚠ ΠΡΟΣΟΧΗ Ακατάλληλος χειρισμός κατά τη μεταφορά και συναρμολόγηση! Κίνδυνος τραυματισμού! Χρησιμοποιείτε κατάλληλους μηχανισμούς συναρμολόγησης και μεταφοράς. Χρησιμοποιείτε κατάλληλα εργαλεία και ατομικό εξοπλισμό προστασίας.
⚠ PERSPĒJIMAS Netinkamas darbas su baterijomis! Susižalojimo pavojus! Nebandykite tuščių baterijų reaktyvuoti arba įkrauti (sprogimo ir išėsdinimo pavojus). Neardykite ir nepažeiskite baterijų. Nemeskite baterijų į ugnį.	⚠ ETTEVAATUST Patareide asjatundmatu käsitsemine! Vigastusoht! Ärge üritage kunagi tühje patareisid reaktiveerida või täis laadida (plahvatus- ja söövitusoht). Ärge demonteerige ega kahjustage patareisid. Ärge visake patareisid tulle.	⚠ ΠΡΟΣΟΧΗ Ακατάλληλος χειρισμός μπαταριών! Κίνδυνος τραυματισμού! Μην επιδιώκετε να ενεργοποιήσετε ξανά ή να φορτίσετε κενές μπαταρίες (κίνδυνος έκρηξης και διάβρωσης). Μην διαλύετε ή καταστρέφετε τις μπαταρίες. Μην απορρίπτετε τις μπαταρίες στη φωτιά.

CN 中文
⚠ 警告 如果不按照下述指定的安全说明使用，将会导致人身伤害！ 在没有阅读，理解随本产品附带的文件并熟知正当使用前，不要安装或使用本产品。 如果没有您所在国家官方语言文件说明，请与 Rexroth 销售伙伴联系。 只允许有资格人员对驱动器部件进行操作。 安全说明的详细解释在本文档的第一章。
⚠ 警告 高电压！电击导致生命危险！ 只有在安装了永久良好的设备接地导线后才可以对驱动器的部件进行操作。 在接触驱动器部件前先将驱动器部件断电。 确保电容放电时间。
⚠ 警告 危险运动！生命危险！ 保证设备的运动区域内和移动部件周围无障碍物。 防止人员意外进入设备运动区域内。 在接近或进入危险区域之前，确保传动设备安全停止。
⚠ 警告 电磁场/磁场！对佩戴心脏起搏器、金属植入物和助听器的人员会造成严重的人身伤害！ 上述人员禁止进入安装及运行的驱动器区域，或者必须事先咨询医生。
⚠ 小心 热表面（大于 60 度）！灼伤风险！ 不要触摸金属表面（例如散热器）。驱动器部件断电后需要时间进行冷却（至少 15 分钟）。
⚠ 小心 安装和运输不当导致受伤危险！当心受伤！ 使用适当的运输和安装设备。 使用适合的工具及用适当的防护设备。
⚠ 小心 电池操作不当！受伤风险！ 请勿对低电量电池重新激活或重新充电（爆炸和腐蚀的危险）。 请勿拆解或损坏电池。请勿将电池投入明火中。

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1 Important notes

1.1 Safety instructions

1.1.1 General information

- Do not attempt to install and operate the components of the electric drive and control system without first reading all documentation provided with the product. Read and understand these safety instructions and all user documentation prior to working with these components. If you do not have the user documentation for the components, contact our Rexroth sales representative. Ask for these documents to be sent immediately to the person or persons responsible for the safe operation of the components.
- If the supplied documents contain some information you do not understand, it is absolutely necessary that you ask Rexroth for explanation before you start working at or with the components.
- If the component is resold, rented and/or passed on to others in any other form, these safety instructions must be delivered with the component in the official language of the user's country.
- Only qualified persons may work with components of the electric drive and control system or within its proximity.

In terms of this Instruction Manual, qualified persons are those persons who are familiar with the installation, mounting, commissioning and operation of the components of the electric drive and control system, as well as with the hazards this implies, and who possess the qualifications their work requires. To comply with these qualifications, it is necessary, among other things,

 - to be trained, instructed or authorized to switch electric circuits and components safely on and off, to ground them and to mark them,
 - to be trained or instructed to maintain and use adequate safety equipment,
 - to attend a course of instruction in first aid.
- The technical data, connection and installation conditions of the components are specified in the respective application documentations and must be followed at all times.
- If the components take the form of hardware, then they must remain in their original state, in other words, no structural changes are permitted. It is not permitted to decompile software components or alter source codes.
- Do not mount damaged or faulty components or use them in operation.
- Only use accessories and spare parts approved by Rexroth.
- Follow the safety regulations and requirements of the country in which the electric components of the electric drive and control system are operated.
- Proper and correct transport, storage, mounting and installation, as well as care in operation and maintenance, are prerequisites for optimal and safe operation of the component.

Improper use of these components, failure to follow the safety instructions in this document or tampering with the product, including disabling of safety devices, could result in property damage, injury, electric shock or even death.

Important notes

1.1.2 Protection against contact with electrical parts and housings



This section concerns components of the electric drive and control system with voltages of **more than 50 volts**.

Contact with parts conducting voltages above 50 volts can cause personal danger and electric shock. When operating components of the electric drive and control system, it is unavoidable that some parts of these components conduct dangerous voltage.

High electrical voltage! Danger to life, risk of injury by electric shock or serious injury!

- Only qualified persons are allowed to operate, maintain and/or repair the components of the electric drive and control system.
- Follow the general installation and safety regulations when working on power installations.
- Before switching on, the equipment grounding conductor must have been permanently connected to all electric components in accordance with the connection diagram.
- Even for brief measurements or tests, operation is only allowed if the equipment grounding conductor has been permanently connected to the points of the components provided for this purpose.
- Before accessing electrical parts with voltage potentials higher than 50 V, you must disconnect electric components from the mains or from the power supply unit. Secure the electric component from reconnection.
- With electric components, observe the following aspects:
Always wait **30 minutes** after switching off power to allow live capacitors to discharge before accessing an electric component. Measure the electrical voltage of live parts before beginning to work to make sure that the equipment is safe to touch.
- Install the covers and guards provided for this purpose before switching on.
- Never touch any electrical connection points of the components while power is turned on.
- Do not remove or plug in connectors when the component has been powered.
- Under specific conditions, electric drive systems can be operated at mains protected by residual-current-operated circuit-breakers sensitive to universal current (RCDs/RCMs).
- Secure built-in devices from penetrating foreign objects and water, as well as from direct contact, by providing an external housing, for example a control cabinet.

High housing voltage and high leakage current! Danger to life, risk of injury by electric shock!

- Before switching on and before commissioning, ground or connect the components of the electric drive and control system to the equipment grounding conductor at the grounding points.

Important notes

- Connect the equipment grounding conductor of the components of the electric drive and control system permanently to the main power supply at all times. The leakage current is greater than 3.5 mA.
- Establish an equipment grounding connection with a minimum cross section according to the table below. With an outer conductor cross section smaller than 10 mm² (8 AWG), the alternative connection of two equipment grounding conductors is allowed, each having the same cross section as the outer conductors.

Cross section outer conductor	Minimum cross section equipment grounding conductor Leakage current ≥ 3.5 mA	
	1 equipment grounding conductor	2 equipment grounding conductors
1.5 mm ² (16 AWG)	10 mm ² (8 AWG)	2 × 1.5 mm ² (16 AWG)
2.5 mm ² (14 AWG)		2 × 2.5 mm ² (14 AWG)
4 mm ² (12 AWG)		2 × 4 mm ² (12 AWG)
6 mm ² (10 AWG)		2 × 6 mm ² (10 AWG)
10 mm ² (8 AWG)		-
16 mm ² (6 AWG)	16 mm ² (6 AWG)	-
25 mm ² (4 AWG)		-
35 mm ² (2 AWG)		-
50 mm ² (1/0 AWG)	25 mm ² (4 AWG)	-
70 mm ² (2/0 AWG)	35 mm ² (2 AWG)	-
...	...	...

Tab. 1-1: Minimum cross section of the equipment grounding connection

1.1.3 Battery safety

Batteries consist of active chemicals in a solid housing. Therefore, improper handling can cause injury or property damage.

Risk of injury by improper handling!

- Do not attempt to reactivate low batteries by heating or other methods (risk of explosion and cauterization).
- Do not attempt to recharge the batteries as this may cause leakage or explosion.
- Do not throw batteries into open flames.
- Do not dismantle batteries.
- When replacing the battery/batteries, do not damage the electrical parts installed in the devices.
- Only use the battery types specified for the product.

Important notes



Environmental protection and disposal! The batteries contained in the product are considered dangerous goods during land, air, and sea transport (risk of explosion) in the sense of the legal regulations. Dispose of used batteries separately from other waste. Observe the national regulations of your country.

1.2 Appropriate use

This product may only be used for the mentioned applications under the specified application, ambient and operating conditions.

This product is exclusively intended for use in machines and systems in an industrial environment. This is to be understood as applications according to IEC 60204-1 "Safety of machinery, Electric equipment of machines" and NFPA 79 "Electrical Standard for Industrial Machinery".



Components of the Rexroth IndraDrive ML system are **products of Category C3** (with restricted distribution) in accordance with IEC 61800-3. This Category comprises EMC limit values for line-based and radiated noise emission. Compliance with this Category (limit values) requires the appropriate measures of interference suppression to be used in the drive system (e.g., mains filters, shielding measures).

These components are not provided for use in a public low-voltage mains supplying residential areas. If these components are used in such a mains, high-frequency interference is to be expected. This can require additional measures of interference suppression.

2.1 Type code

2.1.1 HMU05

[illegible]

Identification

Short type designation	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0
Example:	H	M	U	0	5	.	1	N	-	F	0	2	7	0	-	0	6	6	0	-	N	-	A	4	-	D	7	-	N	1	N	-	N	N	N	N				
	①		②			③④			⑤	⑥											⑦		⑧						⑨⑩⑪				⑫							
⑨	Parallel operation 1): N = Parallel operation is not possible P = Parallel operation is possible																																							
⑩	Motor/mains module connection 2): B = Not equipped (with blank cover at motor/mains module connection and control section connection) 1 = Equipped																																							
⑪	Parallel module connection 3): B = Not equipped, with blank cover 1 = Equipped N = Without																																							
⑫	Other design: NNNN = None																																							

- 1)
- Parallel operation = N only possible with DC bus continuous power / maximum current = 0140-0350, 0170-0430, 0220-0510 and 0270-0660
- 2)
- Motor/mains module connection = B only possible if parallel operation = P
- 3)
- Parallel module connection = B or 1 only possible if parallel operation = P
- 4)
- DC bus continuous power / maximum current = 0140-0210 or = 0170-0250 or = 0220-0300 or = 0270-0370 or = 0400-0600 or = 0540-0750 or = 0680-0980 only with cooling type = F and mains connection voltage / nominal DC bus voltage = **A5-11**; DC bus continuous power / maximum current = 0140-0350 or = 0170-0430 or = 0220-0510 or = 0270-0660 or = 0340-0820 or = 0430-1040 or = 0540-1300 or = 0680-1690 only with cooling type = F and mains connection voltage / nominal DC bus voltage = **A4-D7**

Tab. 2-1: HMU05, type code



The figure illustrates the basic structure of the type code. Our sales representative will help you with the current status of available versions.

[illegible]

Identification

Short type designation	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	
Example:	C	S	B	0	2	.	5	B	-	E	T	-	E	C	-	P	B	-	L	3	-	E	C	-	N	N	-	F	W												
	①		②			③	④		⑤			⑥			⑦			⑧			⑨			⑩			⑪														
⑩	Other design: NN = None																																								
⑪	Firmware: FW = Firmware has to be ordered as a separate subposition NW = Without control panel, without firmware																																								

- 1) The L3, S4, S5 and SB interfaces guarantee both the function and the certification
- 2) Only if interface 2 = PB or CN
- 3) Only if interface 2 = PB, CN or EC
- Tab. 2-2: CSB02.5 type code



The figure illustrates the basic structure of the type code. Our sales representative will help you with the current status of available versions.

										1										2										3							4			
Short type designation	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0
Example:	C	S	H	0	2	.	5	B	-	C	C	-	E	C	-	E	T	-	N	N	-	D	A	-	N	N	-	F	W											
	①			②			③	④		⑤			⑥			⑦			⑧			⑨			⑩			⑪												
①	Product: CSH = Single-axis control section ADVANCED																																							
②	Series: 02 = 02																																							
③	Design: 5 = For Hxx05																																							
④	Interface equipment: B = Extended scope																																							
⑤	Communication: CC = sercos III master ET = Multi-Ethernet																																							
⑥	Interface 1: EC = Multi-encoder interface																																							
⑦	Interface 2: NN = Not equipped ET = Multi-Ethernet ¹⁾ PB = PROFIBUS ¹⁾ CN = CANopen ¹⁾ EC = Multi-encoder interface EM = Encoder emulation																																							
⑧	Interface 3 (safety technology) ²⁾: NN = Not equipped L3 = STO (Safe Torque Off) S4 = Safe Motion S5 = Safe Motion SB = Safe Motion Bus																																							
⑨	Interface 4: NN = Not equipped EC = Multi-encoder interface ³⁾ EM = Encoder emulation ³⁾ DA = Digital/analog I/O extension																																							

Identification

Short type designation	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	4
Example:	C	S	H	0	2	.	5	B	-	C	C	-	E	C	-	E	T	-	N	N	-	D	A	-	N	N	-	F	W												
	①			②			③	④		⑤			⑥			⑦			⑧			⑨			⑩			⑪													
⑩	Other design: NN = None																																								
⑪	Firmware: FW = Firmware must be ordered as a separate subposition NW = Without control panel, without firmware																																								

- 1) Only if communication = CC
- 2) The L3, S4, S5 and SB interfaces guarantee both the function and the certification
- 3) Only if interface 2 = ET, PB, CN or EC
- Tab. 2-3: CSH02.5 type code



The figure illustrates the basic structure of the type code. Our sales representative will help you with the current status of available versions.

Tab. 2-4: HNA05, type code



The figure illustrates the basic structure of the type code. Our sales representative will help you with the current status of available versions.

Identification

2.1.5 HLT05

HLT05

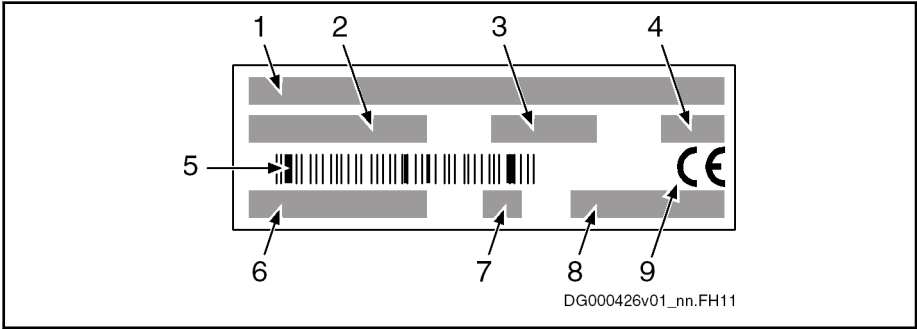
										1											2										3								4		
Short type designation	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	
Example:	H	L	T	0	5	.	1	W	-	1	0	5	K	-	N	-	D	7	-	N	N	N	N																		
	①		②			③	④			⑤				⑥		⑦			⑧																						
①	Product: HLT = HLT																																								
②	Series: 05 = 05																																								
③	Design: 1 = 1																																								
④	Cooling type, type of construction: W = Air cooling																																								
⑤	Nominal power: 045K = 45 kW ¹⁾ 105K = 105 kW 245K = 245 kW ¹⁾																																								
⑥	Degree of protection: N = IP00																																								
⑦	Nominal DC bus voltage: D7 = DC 750 V ¹⁾ 11 = DC 1100 V																																								
⑧	Other design: NNNN = None																																								

1) "045K" and "245K" nominal power only with "D7" nominal DC bus voltage
Tab. 2-5: HLT05, type code

 The figure illustrates the basic structure of the type code. Our sales representative will help you with the current status of available versions.

2.2 Type plates

Type plate (device)



- 1 Device type
- 2 Material number
- 3 Production week; 11W36, for example, means year 2011, week 36
- 4 Factory identifier
- 5 Bar code
- 6 Serial number
- 7 Hardware index
- 8 Country of manufacture
- 9 Identification

Fig. 2-1: Type plate (device)

2.3 Scope of supply

Standard
HAS10.1-002-006-NN
Documentation

Tab. 2-6: Scope of supply HMU05

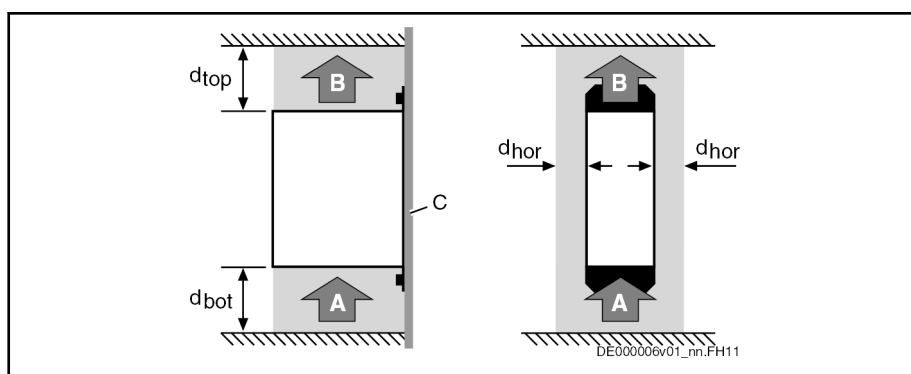
Ratings and dimensions

Description	Symbol	Unit	HMU05.1N- F0140-0350- N-A4-D7-P	HMU05.1N- F0170-0430- N-A4-D7-P	HMU05.1N- F0220-0510- N-A4-D7-P	HMU05.1N- F0270-0660- N-A4-D7-P
Required wire size in accordance with NFPA 79 and UL 508 A (internal wiring); ¹¹⁾	A_{LN}	AWG	Project Planning Manual appendix 11			
Field wiring material (material; conductor temperature; class)			Cu; 60/75 °C; 1			
Output voltage	U_{out}	V	3 x AC 0...500			
Output current	I_{out}	A	254.0	306.0	392.0	490.0
Output frequency range ¹²⁾	f_{out}	Hz	0...1600			
Power dissipation at continuous current and continuous DC bus power respectively ¹³⁾	P_{Diss_cont}	W	2500.00	3000.00	4250.00	5500.00
Last modification: 2016-06-16						

- 1) 2) 3) Housing dimension; see also related dimensional drawing
 4) 5) 6) See fig. "Air intake and air outlet at device"
 7) Observe supply voltage for motor holding brakes
 8) See information on "Rated power consumption control voltage input at U_{N3} "
 9) Mains input L1, L2, L3 (for HMV and HCS only); For use on a solidly grounded wye source only.
 10) Use listed AC input line fuses (class J; 600 V AC). Suitable for use on a circuit capable of delivering not more than 42000 A_{eff} symmetrical amperes, 500 Volts maximum (HMV, HCS02, HCS04.2 480 Volts maximum). If using inverse-time circuit breakers or type E combination motor controllers instead of recommended fuses, see UL 508C section 45.8.2.
 11) Copper wire; PVC-insulation (conductor temperature 90 °C; $T_a \leq 40$ °C) in accordance with NFPA 79 chapter 12 and UL 508A chapter 28
 12) Depending on switching frequency which was set in parameter P-0-0001
 13) Plus dissipation of braking resistor and control section
- Tab. 3-1: HMU - UL ratings and dimensions

Ratings and dimensions

Distances



- A Air intake
- B Air outlet
- C Mounting surface in control cabinet
- d_{top} Distance top
- d_{bot} Distance bottom
- d_{hor} Distance horizontal

Fig. 3-1: Air intake and air outlet at device

Ratings and dimensions

3.1.2 Technical data HMU05.1N-F0340-0820 ... F0680-1690

UL ratings and dimensions

Description	Symbol	Unit	HMU05.1N-F0340-0820-N-A4-D7-P	HMU05.1N-F0430-1040-N-A4-D7-P	HMU05.1N-F0540-1300-N-A4-D7-P	HMU05.1N-F0680-1690-N-A4-D7-P Planned
Listing in accordance with UL standard			UL 61800-5-1			
Listing in accordance with CSA standard			CSA C22.2 No.274-13			
UL-files			E134201			
Pollution degree			2			
Ambient temperature range with nominal data	T _{amax}	°C	40			
Ambient temperature range with reduced nominal data	T _{amax_red}	°C	55			
Mass	m	kg	70.00	83.00	103.00	tbd
Device height ¹⁾	H	mm	1103	1311	1522	tbd
Device depth ²⁾	T	mm	440			tbd
Device width ³⁾	B	mm	200		220	tbd
Minimum distance on the top of the device ⁴⁾	d _{top}	mm	100			
Minimum distance on the bottom of the device ⁵⁾	d _{bot}	mm	100			
Horizontal spacing on the device ⁶⁾	d _{hor}	mm	0			
Rated control voltage input ⁷⁾	U _{N3}	V	24 ±20%			
Rated power consumption control voltage input at U _{N3} ⁸⁾	P _{N3}	W	48	56	58	65
Short circuit current rating	SCCR	A rms	85000			
Rated input voltage, power ⁹⁾	U _{LN_nom}	V	DC 450...750			
Tolerance rated input voltage U _{LN}		%	+10 / -15			
Mains frequency	f _{LN}	Hz	50...60			
Mains frequency tolerance		Hz	± 2			
Rated input current	I _{LN}	A	587.0	734.0	954.0	tbd
Branch circuit protection fuse ¹⁰⁾			KRP-C700SP	KRP-C900SP	KRP-C1200SP	tbd
Required wire size in accordance with NFPA 79 and UL 508 A (internal wiring); ¹¹⁾	A _{LN}	AWG	Project Planning Manual appendix 11			
Last modification: 2016-06-16						

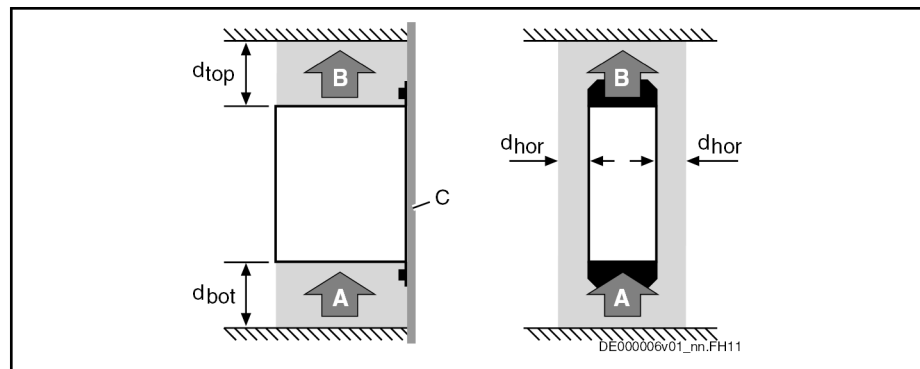
Ratings and dimensions

Description	Symbol	Unit	HMU05.1N- F0340-0820- N-A4-D7-P	HMU05.1N- F0430-1040- N-A4-D7-P	HMU05.1N- F0540-1300- N-A4-D7-P	HMU05.1N- F0680-1690- N-A4-D7-P Planned
Field wiring material (material; conductor temperature; class)			Cu; 60/75 °C; 1			
Output voltage	U_{out}	V	3 x AC 0...500			
Output current	I_{out}	A	616.0	771.0	1002.0	tbd
Output frequency range ¹²⁾	f_{out}	Hz	0...1600			
Power dissipation at continuous current and continuous DC bus power respectively ¹³⁾	P_{Diss_cont}	W	5500.00	6500.00	8700.00	10000.00
Last modification: 2016-06-16						

- 1) 2) 3) Housing dimension; see also related dimensional drawing
4) 5) 6) See fig. "Air intake and air outlet at device"
7) Observe supply voltage for motor holding brakes
8) See information on "Rated power consumption control voltage
input at U_{N3} "
9) Mains input L1, L2, L3 (for HMV and HCS only); For use on a
solidly grounded wye source only.
10) Use listed AC input line fuses (class J; 600 V AC). Suitable for
use on a circuit capable of delivering not more than 42000 A_{eff}
symmetrical amperes, 500 Volts maximum (HMV, HCS02,
HCS04.2 480 Volts maximum). If using inverse-time circuit
breakers or type E combination motor controllers instead of
recommended fuses, see UL 508C section 45.8.2.
11) Copper wire; PVC-insulation (conductor temperature 90 °C;
 $T_a \leq 40$ °C) in accordance with NFPA 79 chapter 12 and
UL 508A chapter 28
12) Depending on switching frequency which was set in parameter
P-0-0001
13) Plus dissipation of braking resistor and control section
- Tab. 3-2: *HMU - UL ratings and dimensions*

Ratings and dimensions

Distances

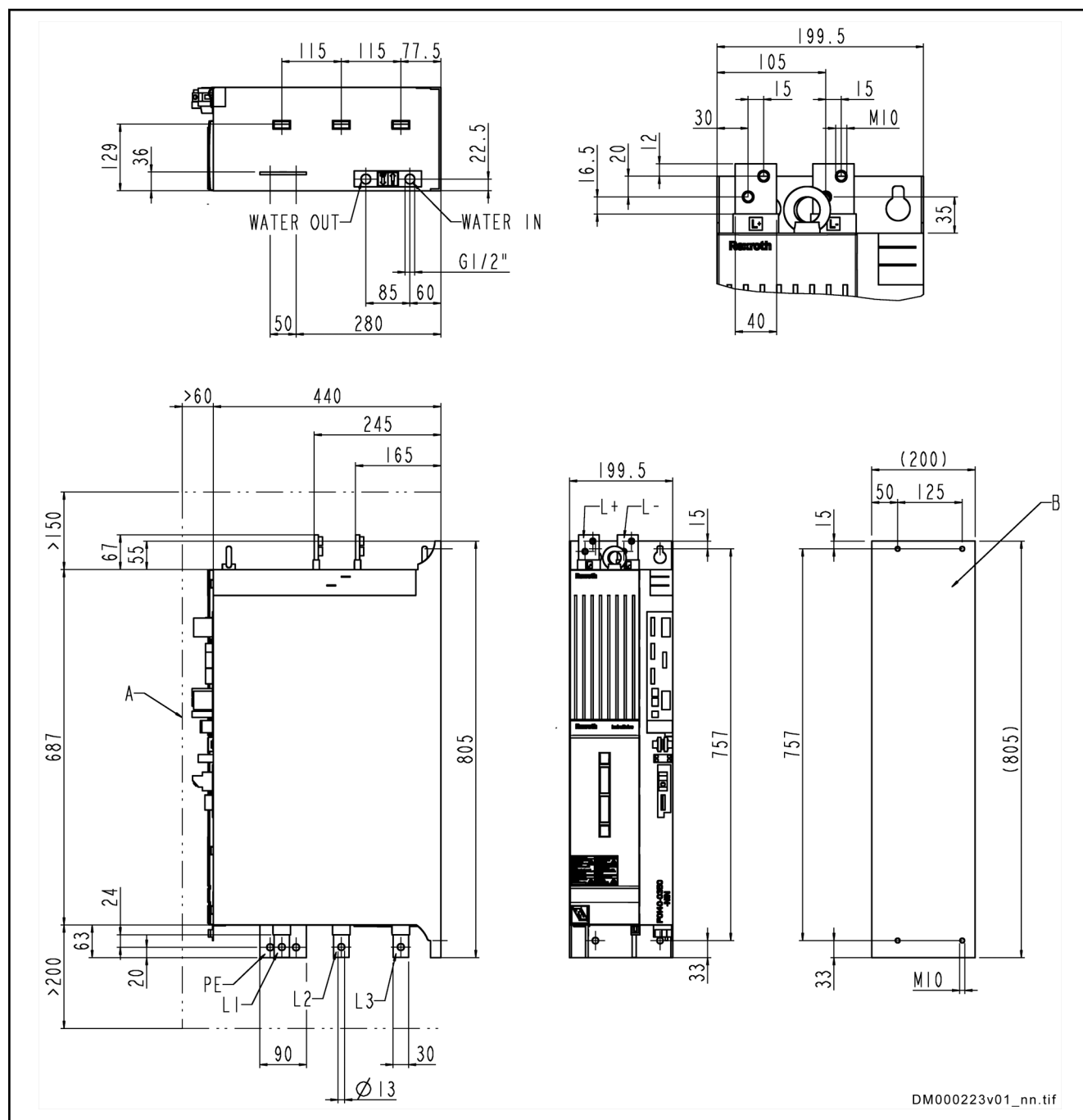


- A** Air intake
B Air outlet
C Mounting surface in control cabinet
 d_{top} Distance top
 d_{bot} Distance bottom
 d_{hor} Distance horizontal

Fig. 3-2: Air intake and air outlet at device

3.1.3 Dimensional drawings

HMU05.1N-F0140-0350



A Minimum mounting clearance
B Boring dimensions
Fig. 3-3: *HMU05.1N-F0140-0350*

Ratings and dimensions

HMU05.1N-F0170-0430

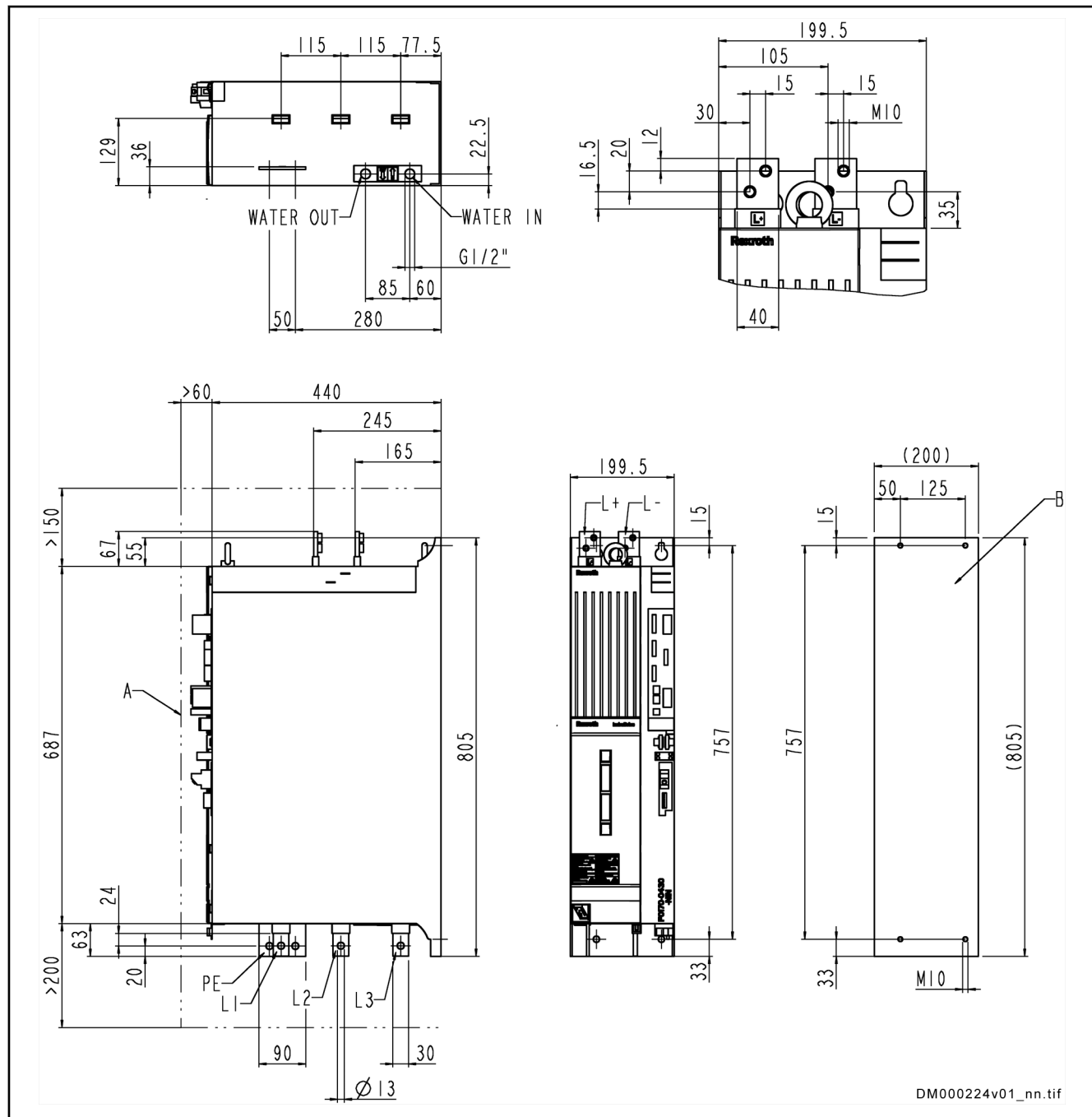
**A****B**

Fig. 3-4:

Minimum mounting clearance

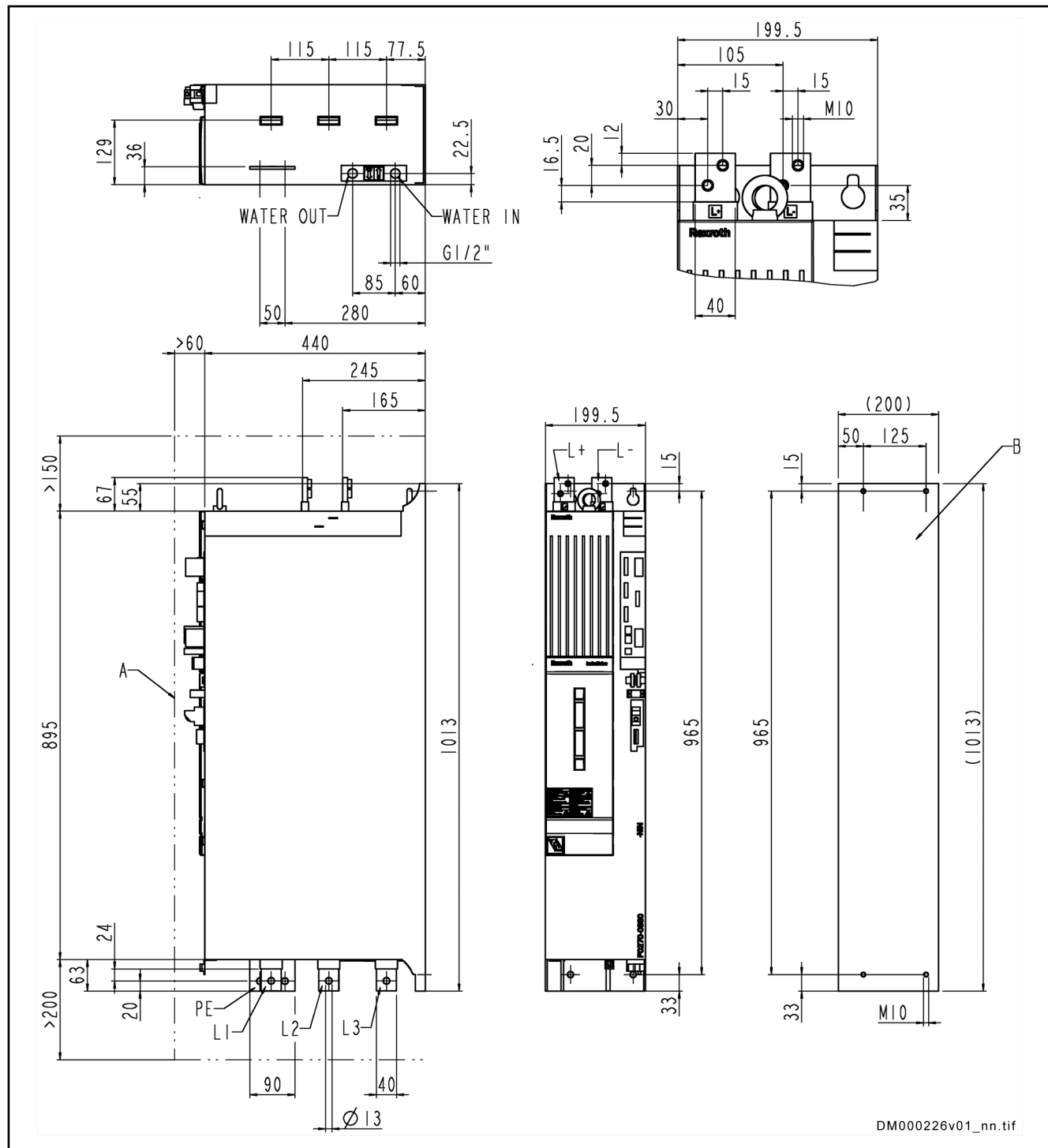
Boring dimensions

HMU05.1N-F0170-0430

Fig. 3-5:

Ratings and dimensions

HMU05.1N-F0270-0660

**A**

Minimum mounting clearance

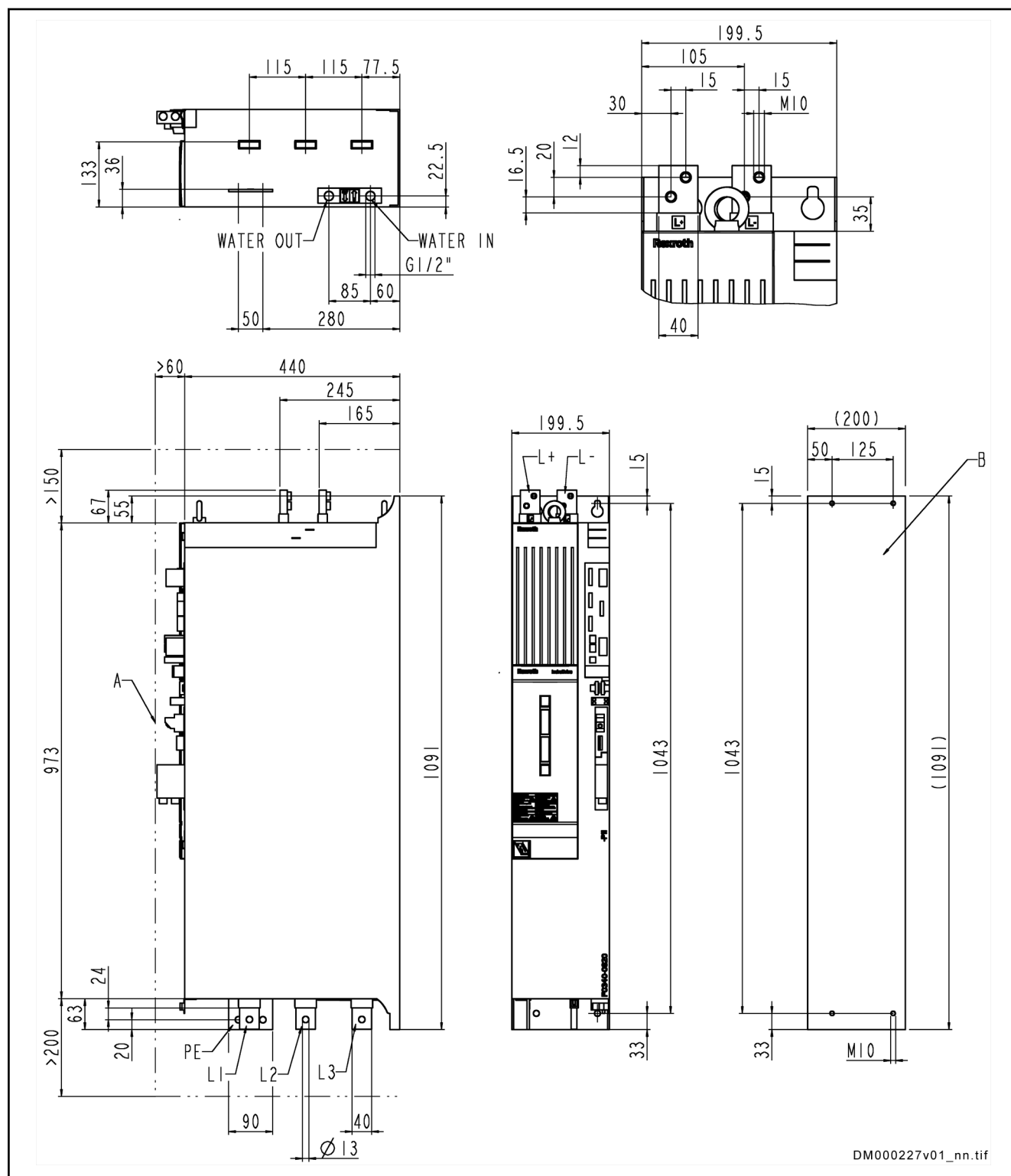
B

Boring dimensions

Fig. 3-6:

HMU05.1N-F0270-0660

HMU05.1N-F0340-0820



A Minimum mounting clearance
B Boring dimensions
Fig. 3-7: HMU05.1N-F0340-0820

Ratings and dimensions

HMU05.1N-F0430-1040

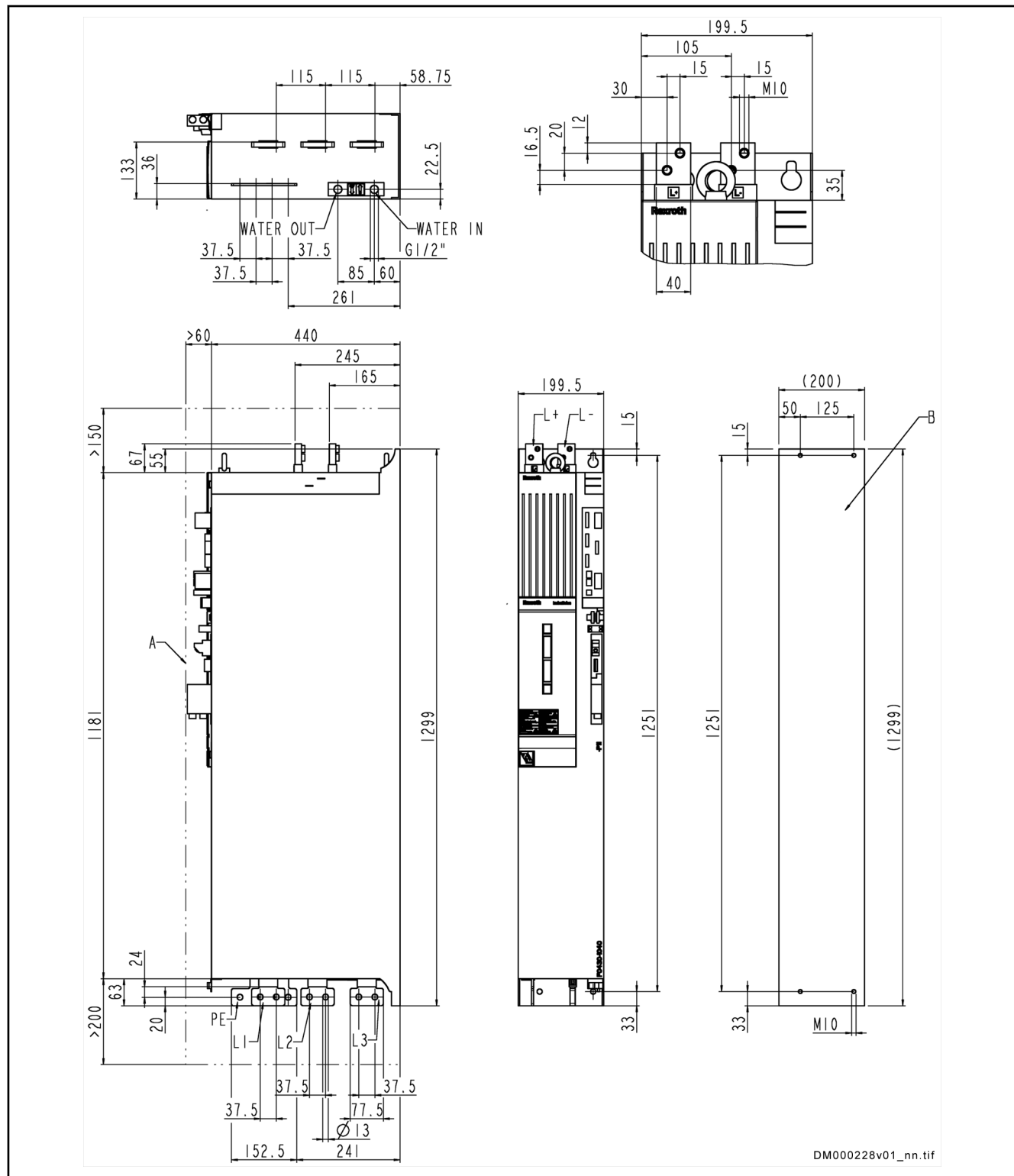
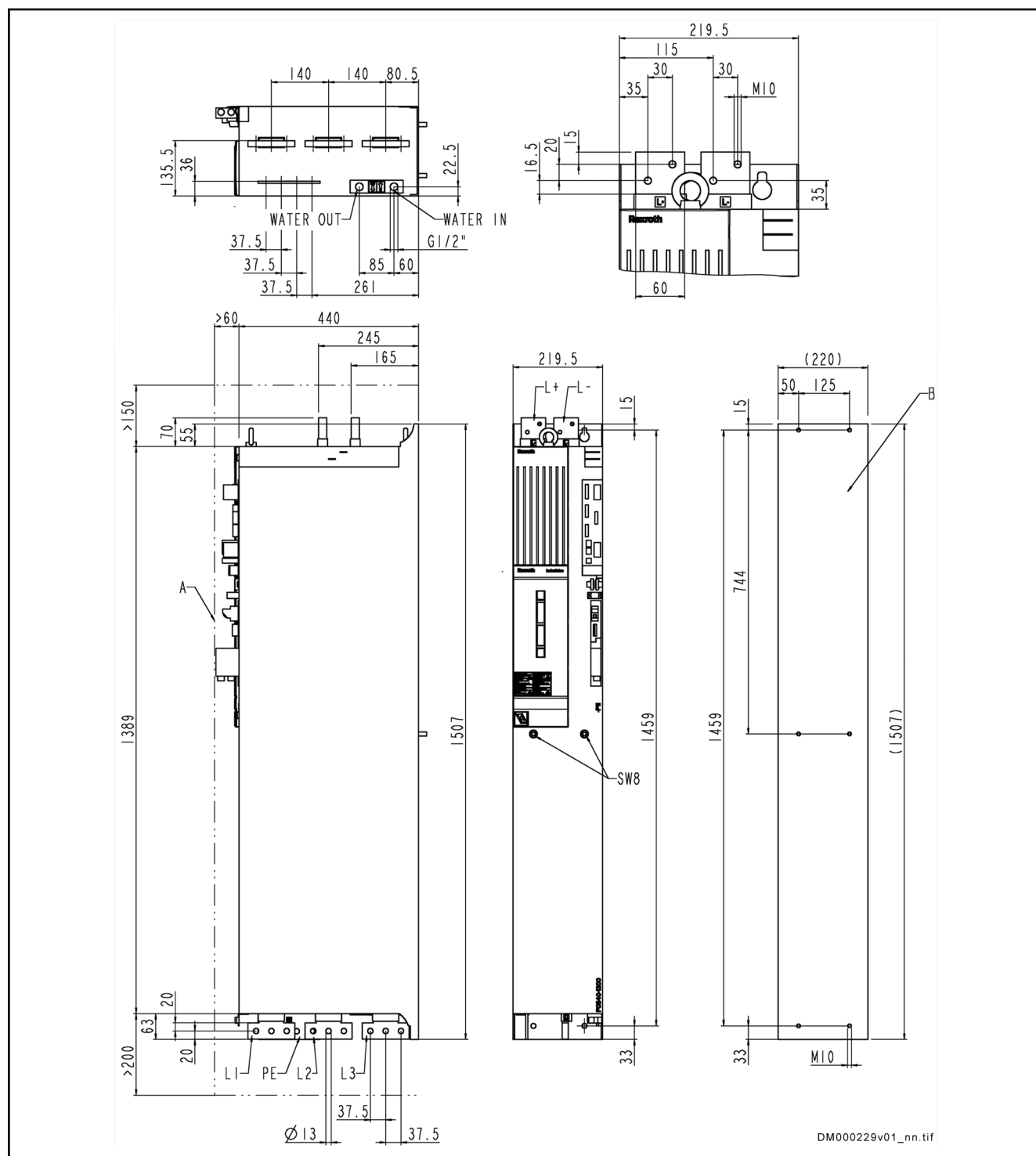
**A** Minimum mounting clearance**B** Boring dimensions

Fig. 3-8:

HMU05.1N-F0430-1040

HMU05.1N-F0540-1300



A Minimum mounting clearance
B Boring dimensions
Fig. 3-9: HMU05.1N-F0540-1300

HMU05.1N-F0680-1690

In preparation

Ratings and dimensions

3.2 HNA05

3.2.1 Technical data

Description	Unit	HNA05.1N-WR02F5-...	
		A4	A5
Degree of protection		IP20	
Allowed mounting position		G1	
Ambient temperature range	°C	0 ... 55	
Mass	kg	6,70	
Insulation resistance	MΩ	50	
Y-capacitance		-	
Installation height	mm	390	
Installation width	mm	124.5	
Cooling type		Air cooling	
Distance top	mm	80	
Distance bottom	mm	80	
Distance side	mm	0	
Charging power dissipation	W	150	
Basic power dissipation in operation	W	50	
Rated power consumption control voltage input at U_{N3}	W	< 15	
Control voltage inrush current	A	< 3	
Inrush current duration	ms	< 2	
Control voltage U_{N3}	V	24	
Tolerance of control voltage U_{N3}	%	±20	
Input capacitance of control voltage U_{N3}	mF	0.05	
Control voltage input current	mA	500	
Rated mains input voltage U_{nenn}	V	AC 400	AC 690
Three-phase mains input voltage (TN-S, TN-C, TT mains)	V	AC 380 ... 500	AC 380 ... 690
Mains input voltage tolerance	%	+10 / -15	
Mains frequency	Hz	50 ... 60	
Maximum allowed mains frequency change	Hz/s	1	
Mains frequency tolerance	Hz	±2	
Rotary field condition		None	
Minimum inductance of mains supply	μH	40	
Charging mains input current	A	< 10	
Mains fuse	A	≤ 16	
Power mains input connection cross section	mm²	2.5	

Ratings and dimensions

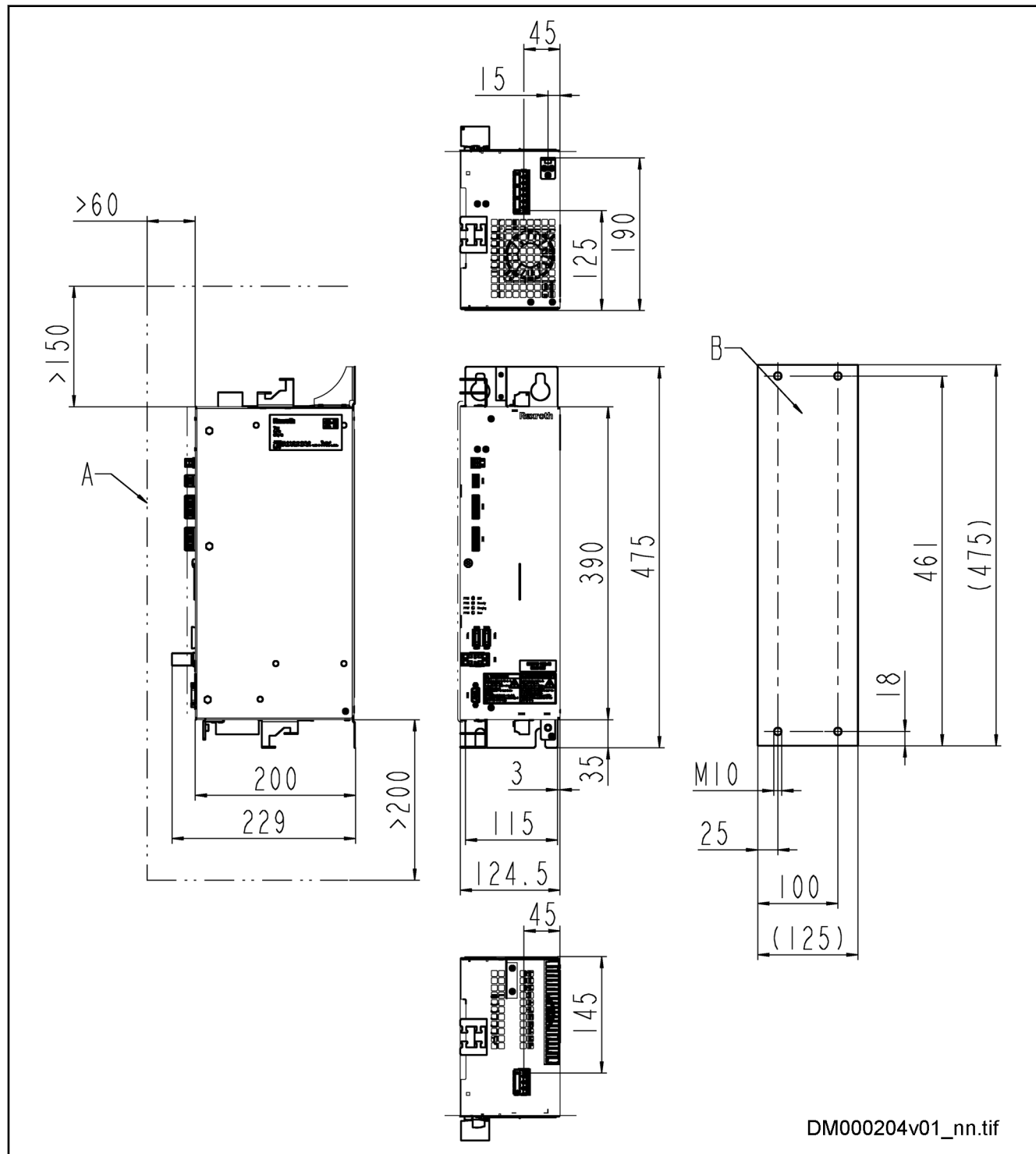
Description	Unit	HNA05.1N-WR02F5-...	
		A4	A5
DC bus connection cross section	mm ²	2.5	
DC bus connection cable length	m	< 2; twisted	
Upper DC bus voltage limit	V	900	1300
Output voltage	V	$U_{\text{nenn}} \times \sqrt{2} + 30$	
Nominal output current	A	10	
Max. chargeable energy	kWs	680	1265
Max. chargeable output voltage	V	808	1100
Max. charging time	s	240	
Maximum capacitance at 500 V	F	2.5	
Minimum capacitance at output	mF	1	
Short circuit current rating (SCCR)	kA rms	85	

Tab. 3-3: HNA05 ratings

Ratings and dimensions

3.2.2 Dimensional drawings

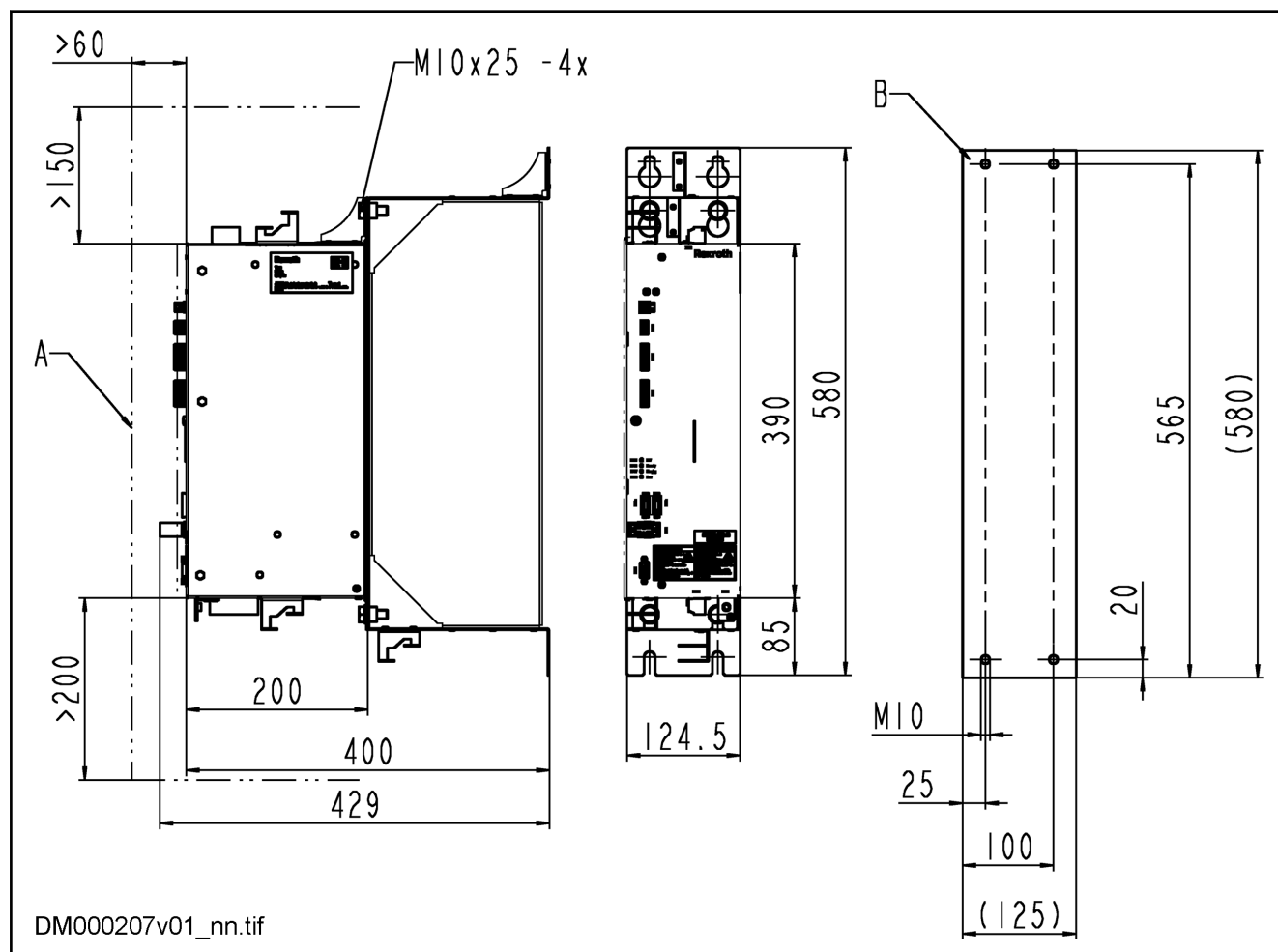
HNA05, dimensional drawing



A Minimum mounting clearance
B Boring dimensions
M10 Tightening torque: 40 Nm
Fig. 3-10: HNA05, dimensional drawing

Ratings and dimensions

HNA05 with mounting plate (400 mm), dimensional drawing



A

B

M10

Fig. 3-11:

Minimum mounting clearance

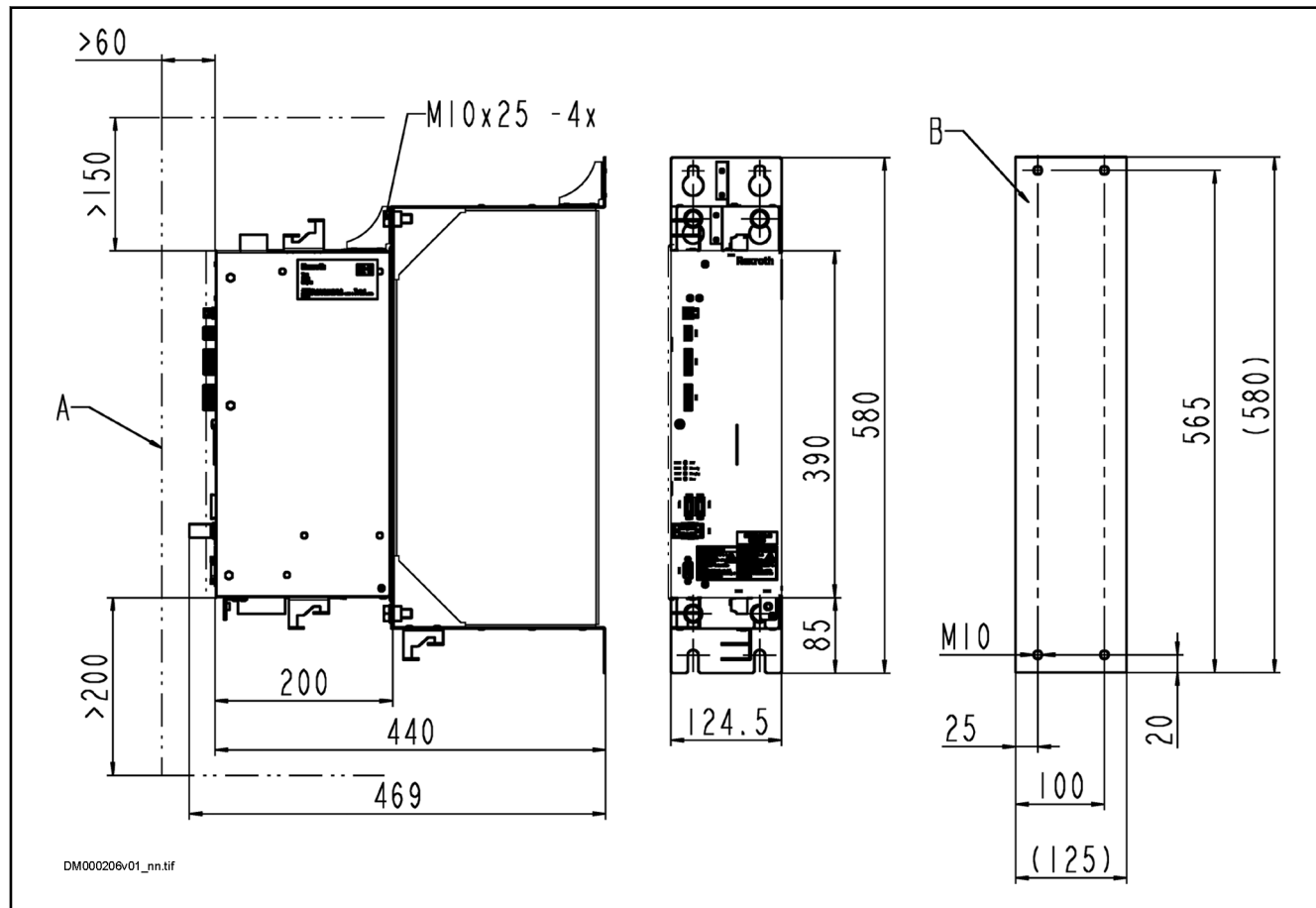
Boring dimensions

Tightening torque: 40 Nm

HNA05 with HAS03.1-006 mounting plate for height leveling and depth leveling to 400 mm depth, dimensional drawing

Ratings and dimensions

HNA05 with mounting plate (440 mm), dimensional drawing

**A**

Minimum mounting clearance

B

Boring dimensions

M10

Tightening torque: 40 Nm

Fig. 3-12:

HNA05 with HAS03.1-007 mounting plate for height leveling and depth leveling to 440 mm depth, dimensional drawing

3.3 HLT05

3.3.1 Technical data

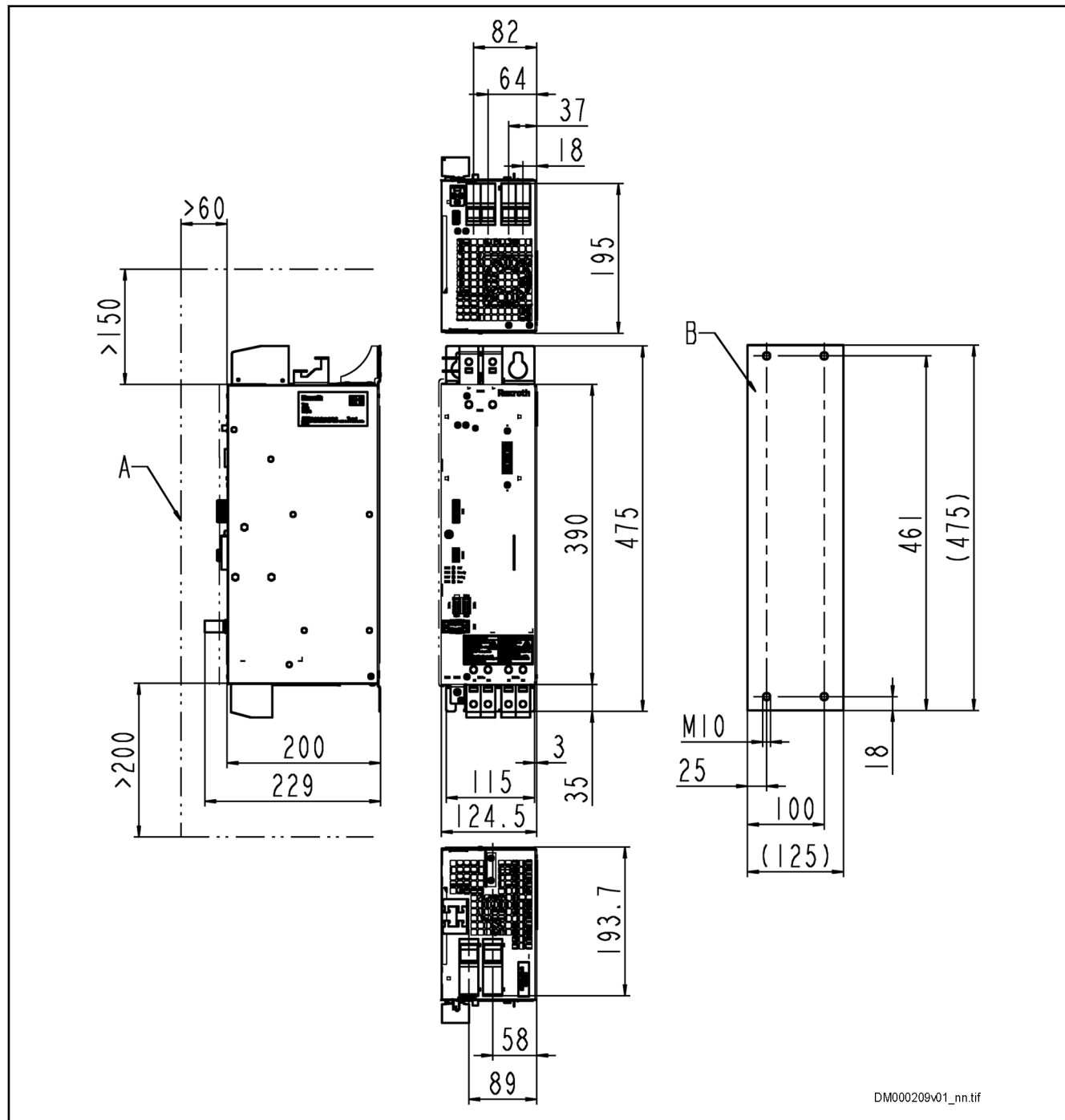
Description	Symbol	Unit	HLT05.1W- ... -0-N-D7-NNNN		
			45K	105K	245K
Continuous power	P_{BD}	kW	45	105	245
Short time power (60 s)	P_{BK}	kW	60	145	350
Peak power (2 s)	P_{BS}	kW	85	205	495
Minimum braking resistance	R_{min}	Ω	5.4	2.7	1.0
Balancing factor for P_{BD} (for parallel operation at common DC bus)	f		0.95		
Min. braking transistor switch-on threshold	$U_{HLT_On_min}$	V	820		
Max. braking transistor switch-on threshold	$U_{HLT_On_max}$	V	850		
Workload-based delay of braking transistor switch-on threshold	$U_{HLT_On_d}$	V	30		
Emergency comparator switch-on voltage	U_{Not}	V	943 $\pm$ 2.5%		
Max. input voltage	U_{max}	V	980		
Continuous current for DC connection points	I_{nom}	A	100	200	500
Power dissipation (full load)	P_{Diss_max}	W	250	400	1000
Power dissipation (standby)	P_{Diss_min}	W	20		
Rated control voltage input	U_{N3}	V	24 $\pm$ 20%		
Control voltage input current	I_{N3}	mA	470		630
Short circuit current rating	SCCR	kA rms	85		
Weight	m	kg	7.5		23

Tab. 3-4: HLT05, ratings

Ratings and dimensions

3.3.2 Dimensional drawings

HLT05.1W-045K, -105K, dimensional drawing

**A**

Minimum mounting clearance

B

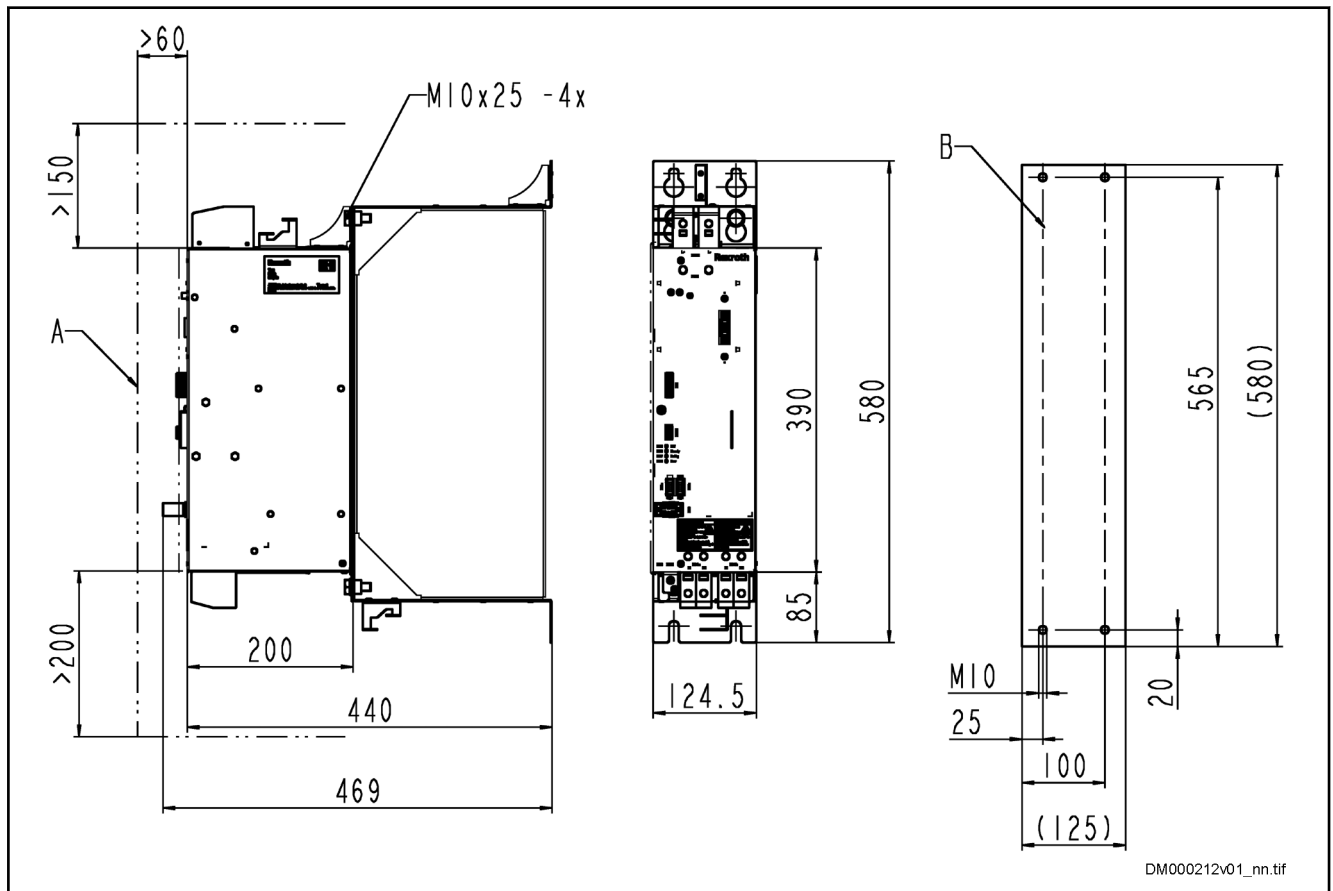
Boring dimensions

Fig. 3-13:

HLT05.1W-045K, -105K, dimensional drawing

Ratings and dimensions

HLT05.1W-045K, -105K with mounting plate (440 mm), dimensional drawing



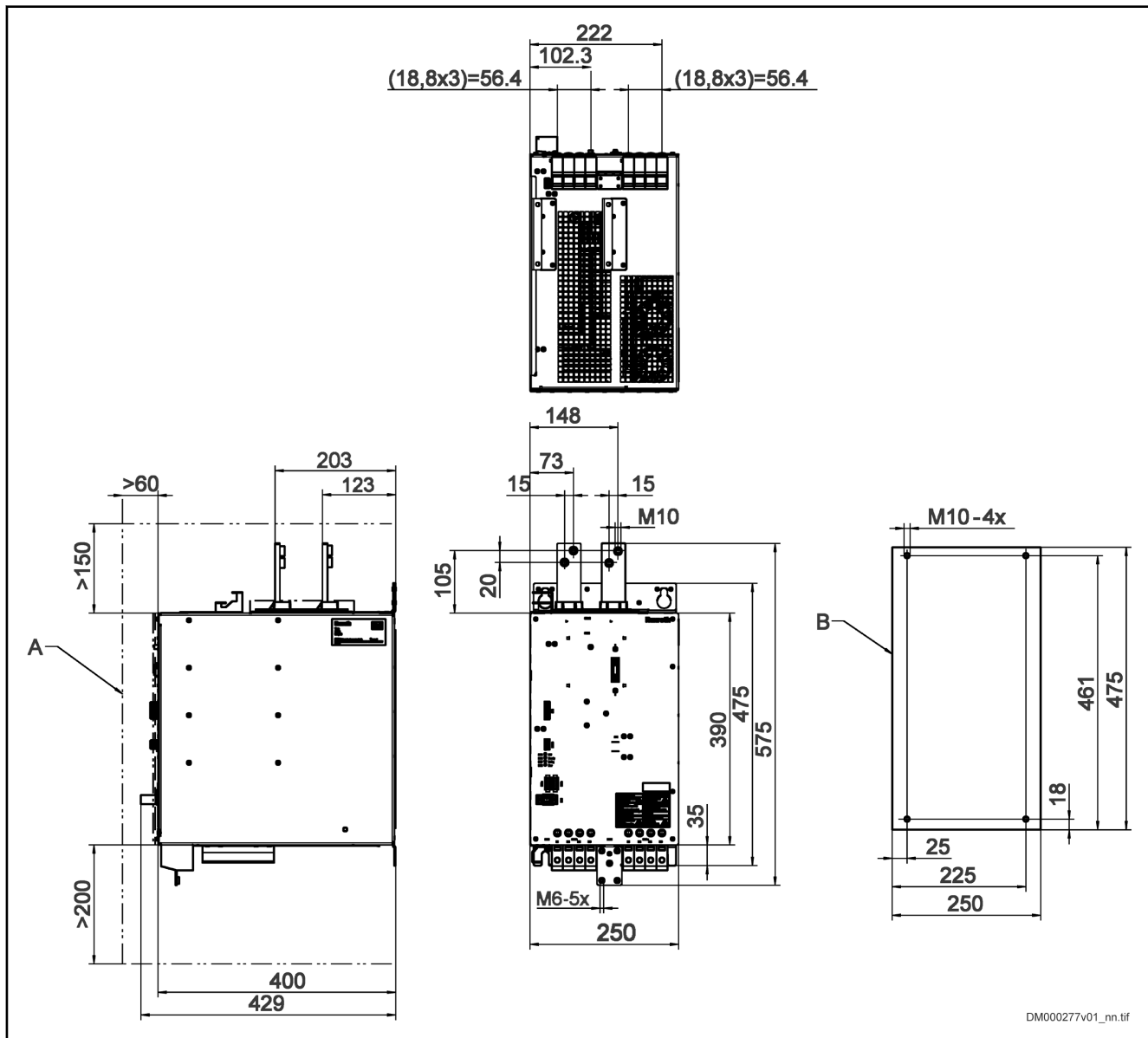
A
B
M10x25
Fig. 3-14:

Minimum mounting clearance
Boring dimensions
Tightening torque = 40 Nm

HLT05.1W-045K, -105K with mounting plate HAS03.1-007 for height leveling and depth leveling to 440 mm depth, dimensional drawing

Ratings and dimensions

HLT05.1W-245K, dimensional drawing



A

B

Minimum mounting clearance

Boring dimensions

Fig. 3-15:

HLT05.1W-245K, dimensional drawing

3.3.3 Connection

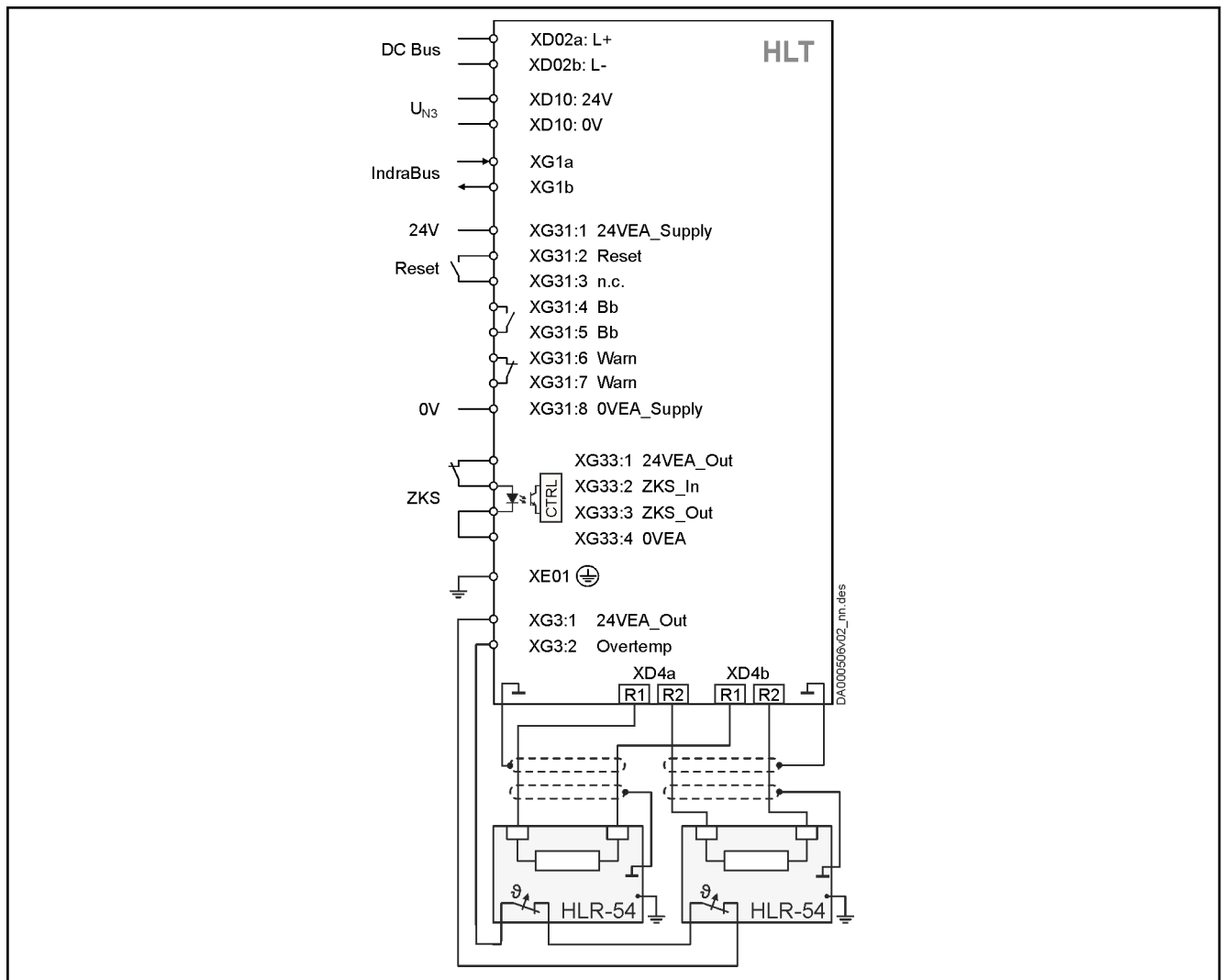


Fig. 3-16: HLT05.1W-045K, -105K connection diagram

Ratings and dimensions

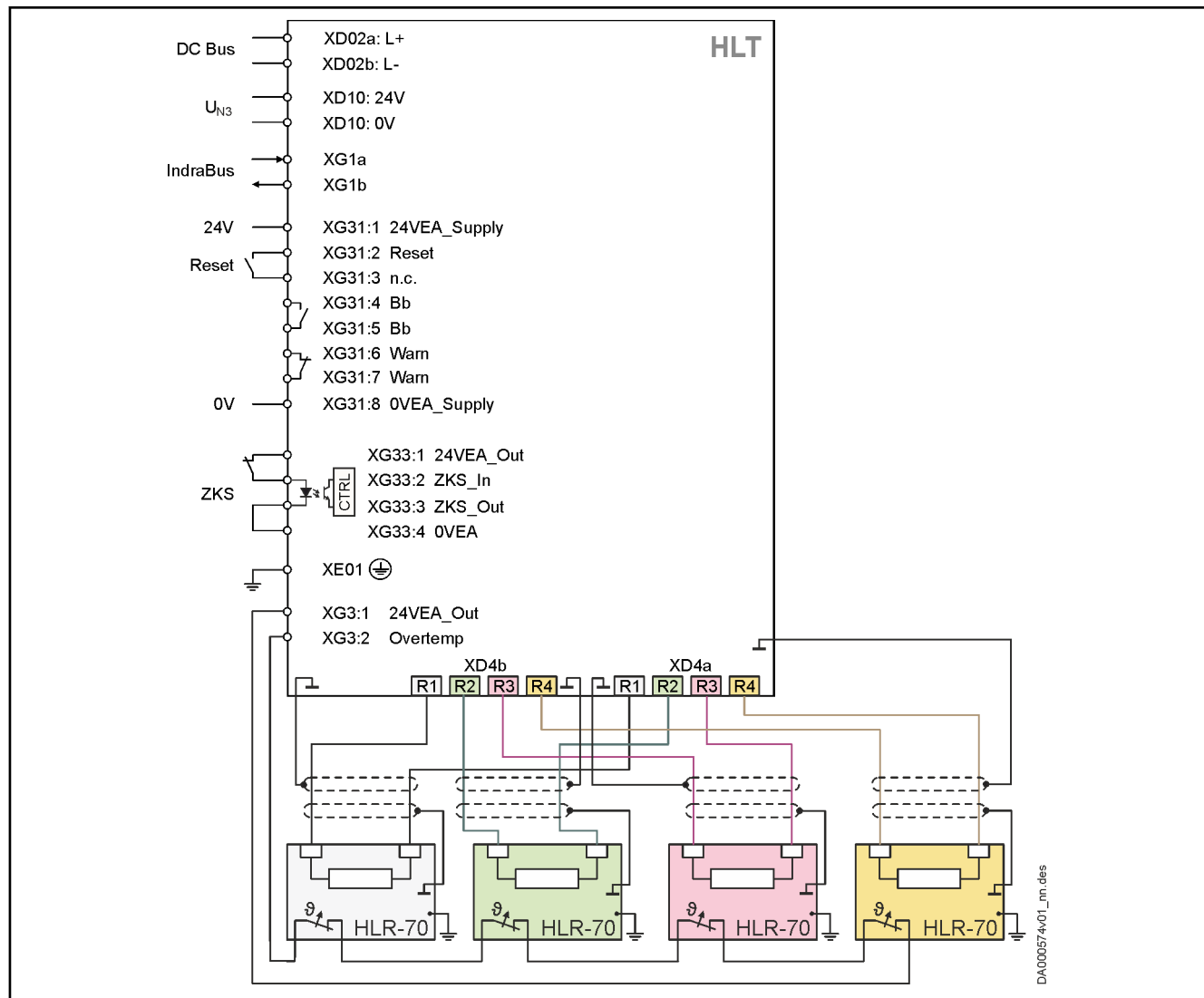


Fig. 3-17: HLT05.1W-245K connection diagram

4 Documentations

4.1 Drive systems, system components

Title Rexroth IndraDrive ...	Type of documentation	Document typecode ¹⁾ DOK-INDRV*-...	Material number en (de)
ML, Drive Systems with HMU05	Project Planning Manual	HXX05*****-PRxx-EN-P	R911344279 (R911344278)
Control Sections CBS02, CSE02, CSH02, CDB02	Project Planning Manual	CXX02*****-PRxx-EN-P	R911338962 (R911338961)

1) In the document typecodes, "xx" is a placeholder for the current edition of the documentation (e.g.: PR01 is the first edition of a Project Planning Manual)

Tab. 4-1: Documentations – drive systems, system components

4.2 Firmware

Title Rexroth IndraDrive ...	Type of documentation	Document typecode ¹⁾ DOK-INDRV*-...	Material number en (de)
Power Supply Basic PSB-20 Version Notes	Release Notes	PSB-20VRS**-RNxx-EN-P	R911345612 (R911345611)
Power Supply Basic PSB-20 Functions	Application Manual	PSB-20VRS**-APxx-EN-P	R911345610 (R911345609)
MPx-20 Version Notes	Release Notes	MP*-20VRS**-RNxx-EN-P	R911345606 (R911345605)
MPx-20 Functions	Application Manual	MP*-20VRS**-APxx-EN-P	R911345608 (R911345607)
MPx-16 to MPx-20 and PSB Parameters	Reference Book	GEN1-PARA**-RExx-EN-P	R911328651 (R911328650)
MPx-16 to MPx-20 and PSB Diagnostic Messages	Reference Book	GEN1-DIAG**-RExx-EN-P	R911326738 (R911326539)
Integrated Safety Technology "Safe Torque Off" (as of MPx-16)	Application Manual	SI3-**VRS**-APxx-EN-P	R911332634 (R911332633)
Integrated Safety Technology "Safe Motion" (as of MPx-18)	Application Manual	SI3*SMO-VRS-APxx-EN-P	R911338920 (R911338919)
Rexroth IndraMotion MLD Libraries as of MPx-18	Reference Book	MLD-SYSLIB3-RExx-EN-P	R911338916 (R911338915)
Rexroth IndraMotion MLD as of MPx-18	Application Manual	MLD3-**VRS*-APxx-EN-P	R911338914 (R911338913)

1) In the document typecodes, "xx" is a placeholder for the current edition of the documentation (e.g.: RE02 is the second edition of a Reference Book)

Tab. 4-2: Documentations – firmware

5 Instructions for use

5.1 Overcurrent protection

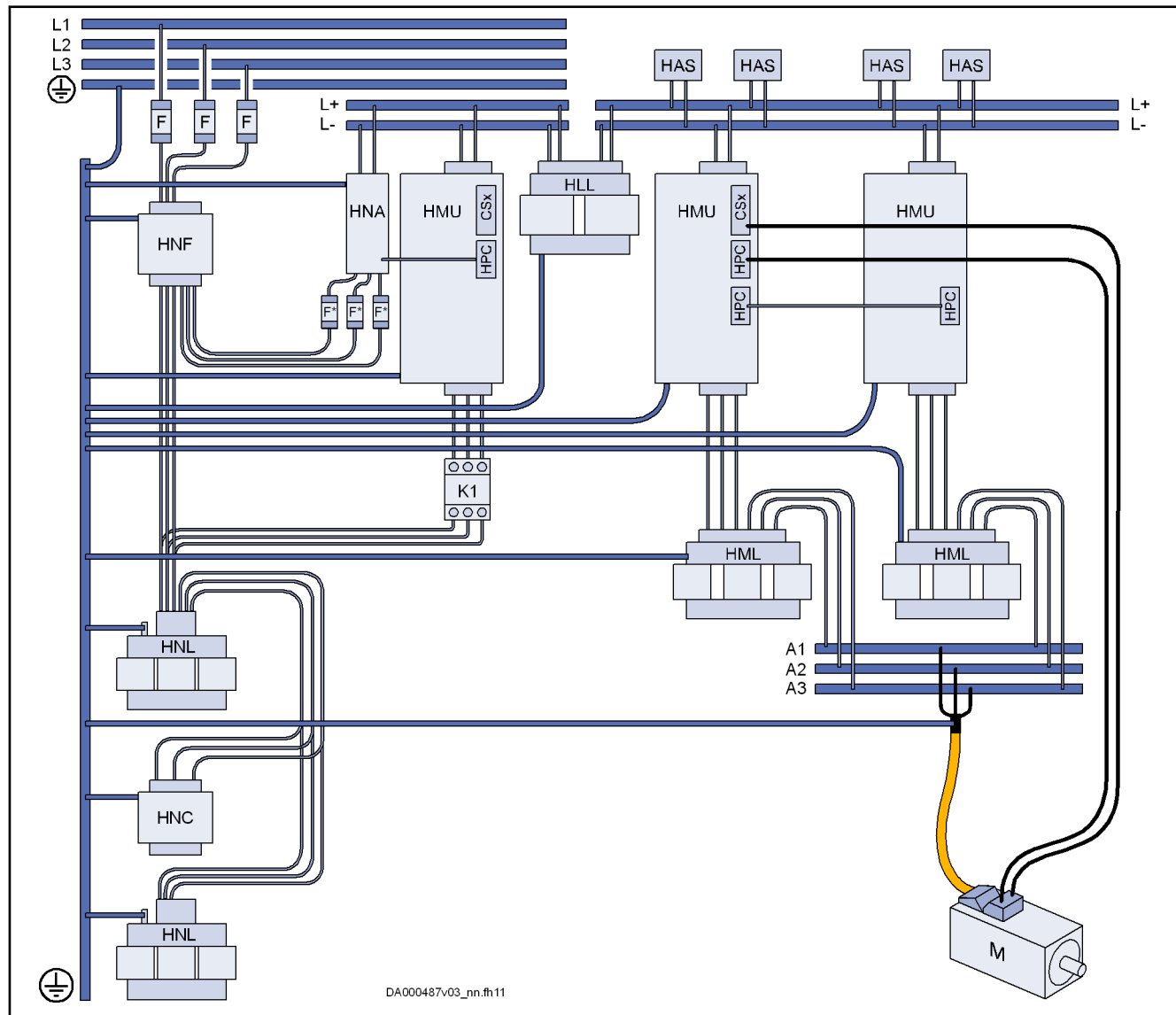
Protect the components against overcurrent:

- Branch circuit protection has to be provided externally
- Dimension the branch circuit protection according to the data "Branch circuit protection fuse" (see Ratings and dimensions)

Instructions for use

5.2 Connection points

5.2.1 Wiring diagram



DA000487v03_nn.fh11

CSx	Control section
F	Fuse
HAS	Y capacitor pair (HAS04.1-003)
HLL	DC bus choke
HML	Motor choke
HMU	Universal inverter
HNA	Mains connection module
HNC	Mains capacitor
HNF	Mains filter
HNL	Mains choke
HPC	Plug-in module for power section
K1	External mains contactor
M	Motor

Fig. 5-1:

Design of a drive system

5.2.2 Connection diagram

Overall connection diagram (HMU05 as drive controller)

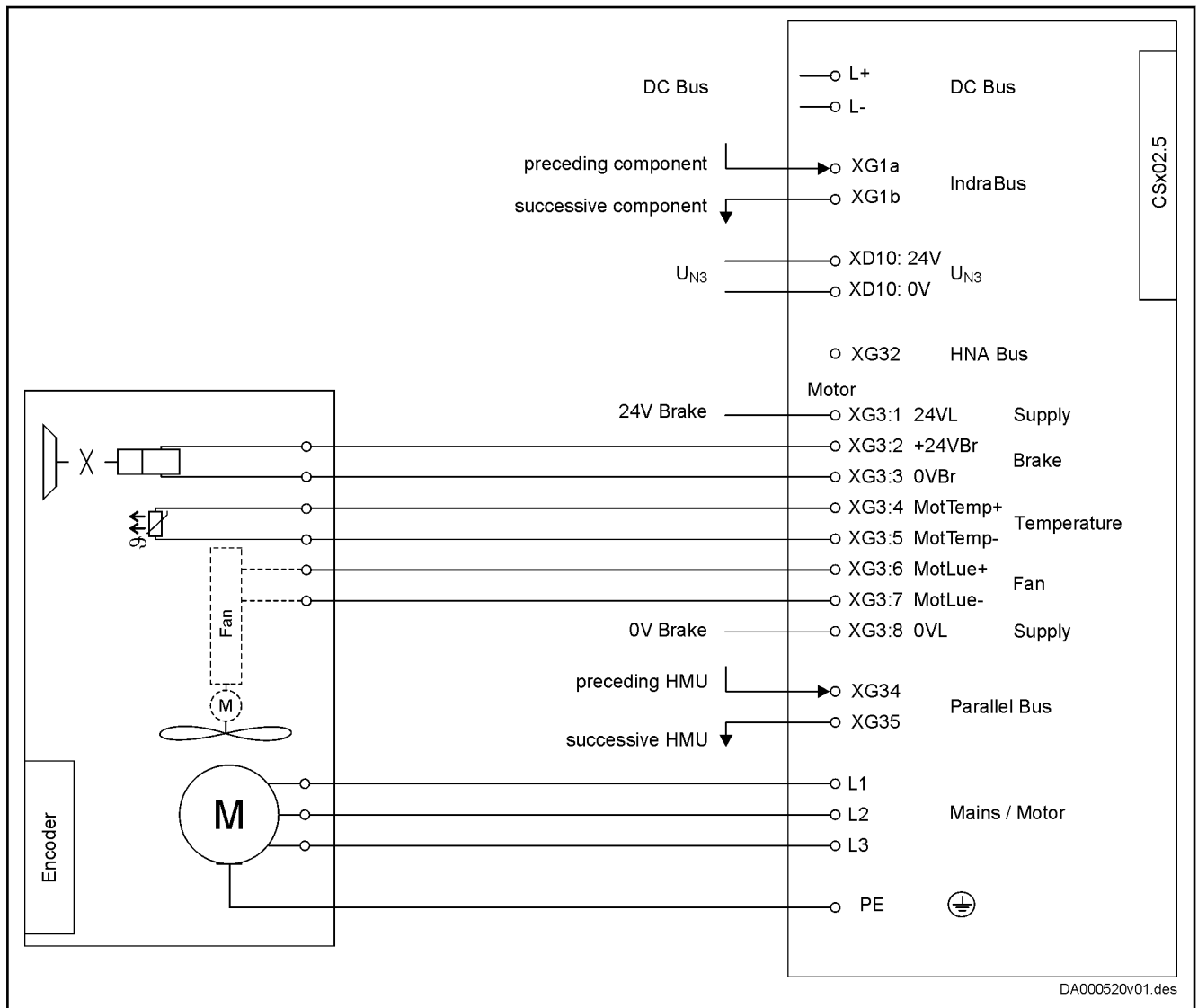


Fig. 5-2: Connection diagram (HMU05 as drive controller)

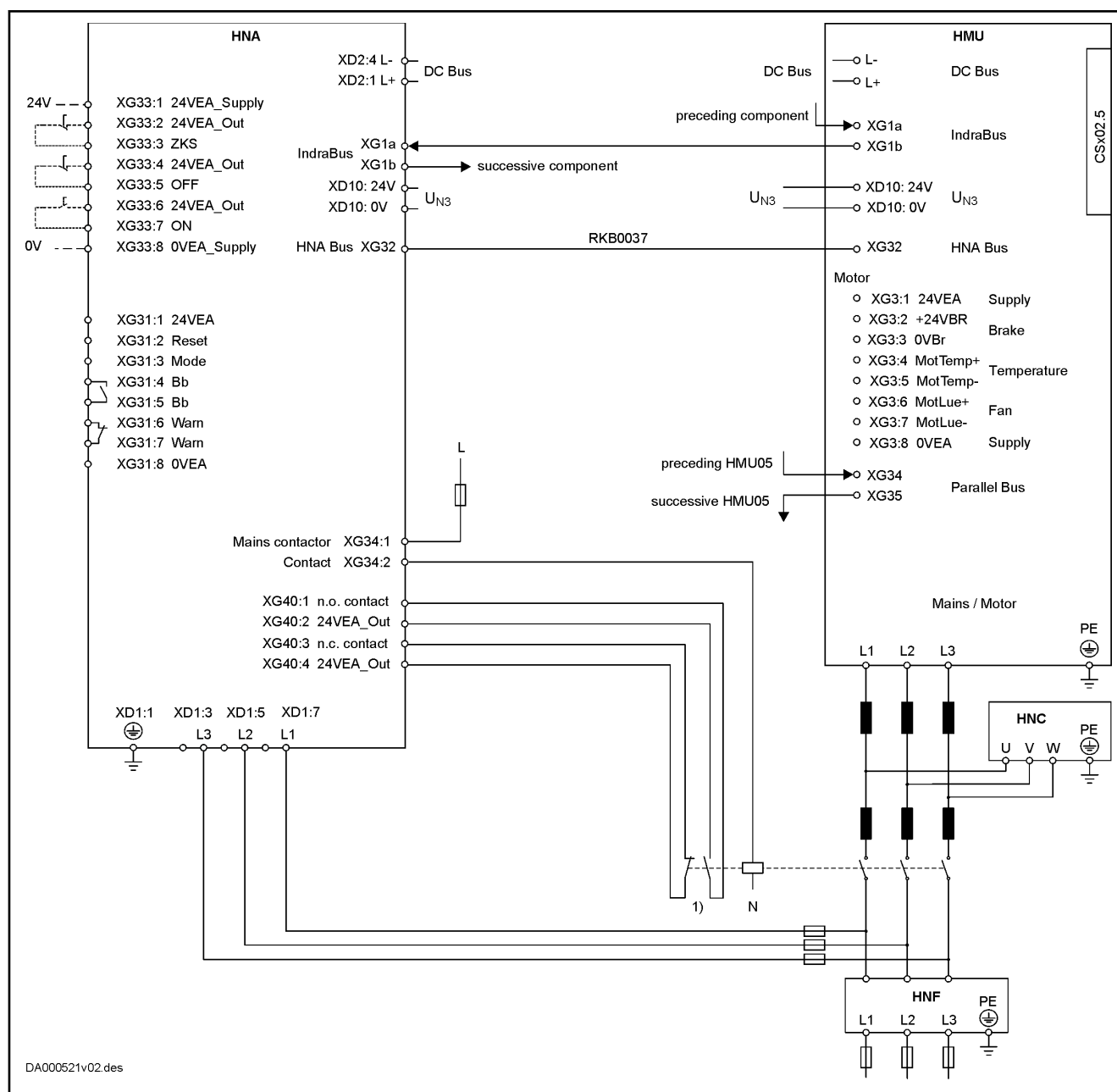
Overall connection diagram (HMU05 as supply unit)

Overall connection diagram with load contactor



For your drive system, preferably use the connection with a load contactor pictured here (instead of the connection with a control-lable main switch).

Instructions for use



1)

With multiple contactors connected in parallel, connect the N/O contacts and N/C contacts in series.

Fig. 5-3:

Connection diagram with load contactor (HMU05 as supply unit)

Overall connection diagram with a controllable main switch



For your drive system, preferably use the connection with a load contactor (instead of the connection with a controllable main switch).

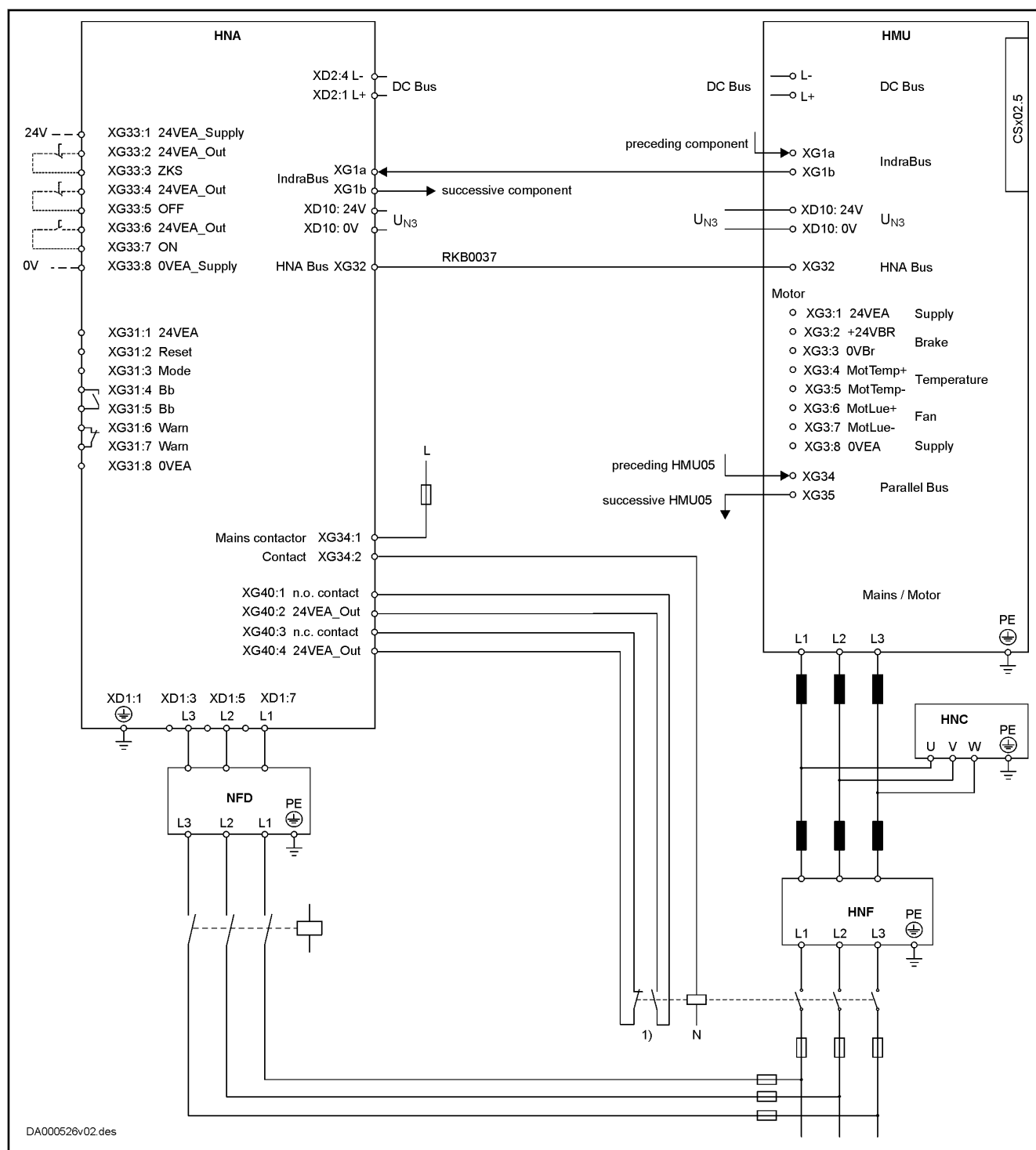


Transient oscillation processes between HNC and mains inductance can occur when the main switch is turned on. Therefore, select an appropriate main switch.



Observe the local regulations regarding EMC and standards.

Instructions for use



DA000526v02.des

1)

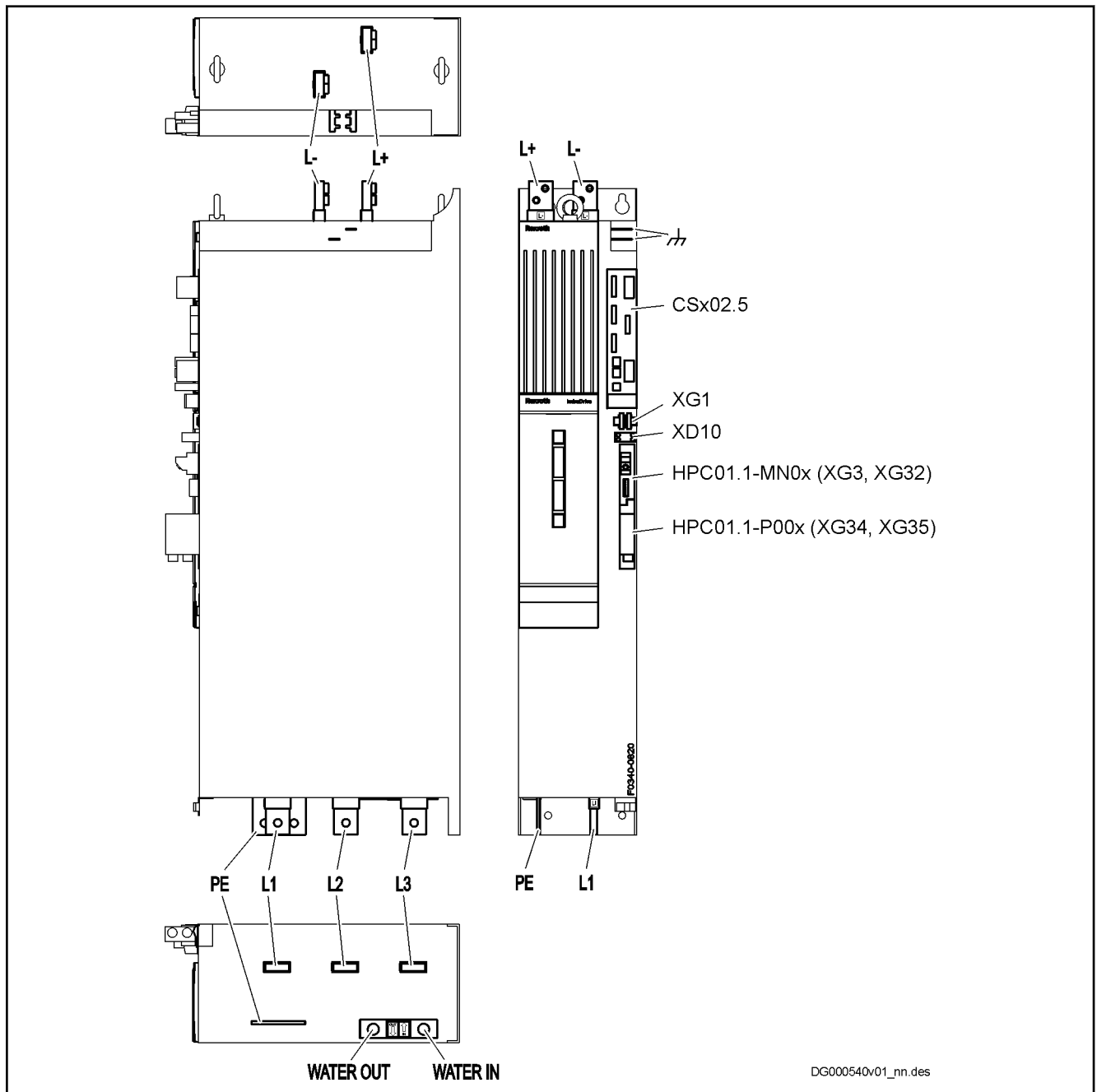
With multiple main switches connected in parallel, connect the N/O contacts and N/C contacts in series.

Fig. 5-4:

Connection diagram with controllable main switch (HMU05 as supply unit)

5.2.3 Arrangement of HMU05 connection points

HMU05 connection points



CSx02.5 Control section
HPC01 Optional card
L1, L2, L3 Mains/motor connection
L+, L- DC Bus
PE Equipment grounding conductor
XG1 IndraBus
XD10 Control voltage
WATER IN/OUT Cooling liquid

Fig. 5-5: HMU05 connection points

5.2.4 Connection point of equipment grounding conductor

⚠ WARNING

High housing voltage and high leakage current! Danger to life, risk of injury from electric shock!

- Ground or connect the electrical drive and control system components with the equipment grounding conductor to the grounding points before power-on and commissioning.
 - Connect the equipment grounding conductor of the electric drive and control system components permanently to the main power supply at all times. The leakage current is greater than 3.5 mA.
 - Make sure the copper equipment grounding connection wire is large enough (see table "Minimum equipment grounding connection cross section").
-

⚠ WARNING

Lethal electric shock by live parts with more than 50 V!

Exclusively operate the device

- with plugged on connectors (even if there haven't been any lines connected to the connectors) and
 - with connected equipment grounding conductor!
-

**Equipment grounding conductor: material and cross section**

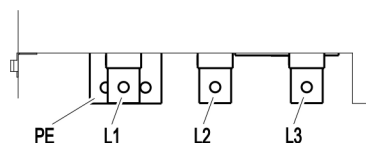
Use the same metal (e.g., copper) for the equipment grounding conductor as for the outer conductors.

Make sure the lines for the connections from the device's equipment grounding conductor to the equipment grounding conductor system in the control cabinet are large enough.

Equipment grounding connection cross sections:

see table "Minimum equipment grounding connection cross section".

Also mount the housing on a bare metal mounting plate. Be sure to connect the mounting plate to the equipment grounding system in the control cabinet with at least the same cross section of wire.

View	Identification	Function	
	PE	Connection to equipment grounding system	
Connecting bolt	Unit	Min.	Max.
Hole diameter	mm	13	
Tightening torque M10	Nm	25	
Tightening torque M12	Nm	48	
Occurring current load and minimum required connection cross section		See technical data of device used (I_{LN} and A_{LN})	
Occurring voltage load		See technical data of device used (U_{LN} or U_{LN_nenn})	

Tab. 5-1: Function, pin assignment, properties

Minimum cross section of equipment grounding connection

Outer conductor cross section	Min. cross section of equipment grounding conductor Leakage current ≥ 3.5 mA
16 mm ² (6 AWG)	16 mm ² (6 AWG)
25 mm ² (4 AWG)	
35 mm ² (2 AWG)	
50 mm ² (1/0 AWG)	25 mm ² (4 AWG)
70 mm ² (2/0 AWG)	35 mm ² (2 AWG)
X mm ²	(X $\times$ 0.5) mm ² (valid for X $\geq$ 50)

Tab. 5-2: Minimum cross section of equipment grounding connection

5.2.5 L1, L2, L3, mains/motor connection

Important notes

⚠ WARNING

Lethal electric shock by live parts with more than 50 V!

Exclusively operate the device

- with plugged on connectors (even if there haven't been any lines connected to the connectors) and
- with connected equipment grounding conductor!

Notes on installation

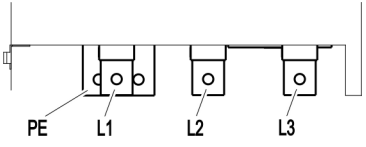
- The cable is connected to the connection point using **ring cable lugs**.
- Measure the **necessary cross section** of the connection cables according to the determined phase current I_{LN} and the mains fuse.

Instructions for use

NOTICE

Risk of damage to the device!

Provide strain relief for the terminal connectors of the device in the control cabinet.

View	Identification	Function	
	L1	Connection to mains power supply (L1) or motor (A1)	
	L2	Connection to mains power supply (L2) or motor (A2)	
	L3	Connection to mains power supply (L3) or motor (A3)	
Connecting bolt	Unit	Min.	Max.
Hole diameter	mm	13	
Tightening torque M10	Nm	25	
Tightening torque M12	Nm	48	
Occurring current load and minimum required connection cross section		See technical data of device used (I_{LN} and A_{LN})	
Occurring voltage load		See technical data of device used (U_{LN} or U_{LN_nenn})	

Tab. 5-3: Function, pin assignment, properties

5.2.6 XG3, motor temperature monitoring, motor holding brake, motor fan control

⚠ WARNING

Dangerous movements! Danger to persons from falling or dropping axes!

The standard motor holding brake provided or an external motor holding brake controlled directly by the drive controller are not sufficient on their own to guarantee personal safety!

Personal safety must be achieved using higher-level, fail-safe measures:

- Block off danger zones with safety fences or safety guards
- Additionally secure vertical axes against falling or dropping after switching off the motor power by, for example,
 - mechanically securing the vertical axes
 - adding external braking/arrester/clamping mechanisms
 - ensuring sufficient equilibration of the vertical axes

⚠ WARNING

Lethal electric shock from live parts with more than 50 V!

The motor temperature evaluation input is **not** electrically isolated from the housing. If excessive voltage is applied to the input (e.g., from motor winding voltage flashover), this voltage can travel to the housing. Make sure the temperature sensor of the connected motor is **double** insulated from the motor winding.

NOTICE

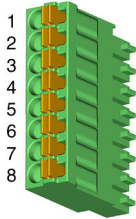
Risk of damage to device from excess voltage at motor temperature evaluation input!

Only the allowed control voltage for the device is allowed at the motor temperature evaluation input. Excess voltage at the input can damage the device.

- Function**
- Monitoring motor temperature
 - Controlling motor holding brake
 - Analog output for connecting a motor fan frequency converter



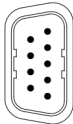
Via an integrated contact element (BR), the power section switches the voltage of the **external** 24 V supply to the output for controlling the motor holding brake.

View	Con- nection	Signal name	Function
 DG000541v01_nn.tif	1	24VEA	24 V supply voltage
	2	24VBr	Output for controlling motor holding brake
	3	0VBr	
	4	MotTemp+	Motor temperature evaluation input
	5	MotTemp-	
	6	MotLue+	Motor fan output (0 ... 10 V)
	7	MotLue0V	Reference to motor fan output (0 V)
	8	0VEA	0 V supply voltage
Spring terminal (connector)	Unit	Min.	Max.
Connection cable Stranded wire	mm ²	0.25	1.5
	AWG	24	16
Stripped length	mm	10	
Current carrying capacity XG3 output (motor holding brake)	A	-	2
Number of switching actions at max. time constant of load		Wear-free electronic contact	
Short circuit protection		XG3.2 against XG3.3 (output for controlling motor holding brake)	
Overload protection		XG3.2 against XG3.3 (output for controlling motor holding brake)	

Tab. 5-4: Function, pin assignment

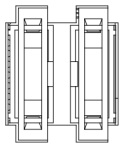
Instructions for use

5.2.7 XG32, HNA bus

View	Identification	Function	
	XG32	HNA bus	
D-Sub, 9-pin, male	Unit	Min.	Max.
Connection cross section	mm²	0.25	0.5
Cable: RKB0037	m	0.5 or 0.66	1

Tab. 5-5: Function, pin assignment, properties

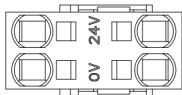
5.2.8 XG1, IndraBus

View	Connection	Function
	XG1a XG1b	Connects parallel components through a ribbon cable. - Output for quickly reporting critical errors to other devices - Input for detecting critical errors from other devices - Blocking and releasing DC bus short circuit by a braking resistor unit - Reporting DC bus availability <i>Cable</i> - Unshielded length: < 3 m Cable designation: RKB0036 - Shielded length: < 100 m Cable designation: RKB0035 In individual operation (that is to say not in combination with other devices of the Hxx05.1 series), both IndraBus RBS0025 terminating plugs must have been plugged in.

Tab. 5-6: XG1, IndraBus

5.2.9 XD10, 24 V supply (control voltage)

Function, pin assignment The 24 V supply is applied externally via connection point X10.

View	Connection	Signal name	Function
	24V	+24V	Power supply
		+24V	
	0V	0V	Reference potential for power supply
		0V	

Tab. 5-7: XD10, 24 V supply

Mechanical data

Spring terminal (connector)	Unit	Min.	Max.
Connection cable Solid wire	mm ²	1	10
Connection cable Stranded wire without ferrule	mm ²	1	6
	AWG	16	10
Connection cable Stranded wire with ferrule	mm ²	1	4
Stripped length	mm	10	

Tab. 5-8: Mechanical data

Electrical data

	Unit	Min.	Max.
Voltage load capacity	V	-	U _{N3}
Power consumption	W	-	P _{N3}
Current carrying capacity (looping through)	A	-	40 (UL: 31)
Allowed inductance	µH	-	100 (2 twisted single strands, 75 m long)

Tab. 5-9: Electrical data

Notes on installation

Depending on the power consumption of the devices and the current carrying capacity of the connector XD10, check the number of devices through which one line for 24 V supply can be looped through. You may have to connect another device directly to the 24 V supply and then loop through the control voltage from this device to other devices.

5.2.10 L+ L-, DC bus connection

WARNING

Lethal electric shock from live parts with more than 50 V!

Before working on live parts: De-energize system and secure power switch against unintentional or unauthorized reconnection.

Make sure voltage has fallen below 50 V before touching live parts!

Wait at least **30 minutes** after switching off the supply voltages to allow **discharging** before accessing the device.

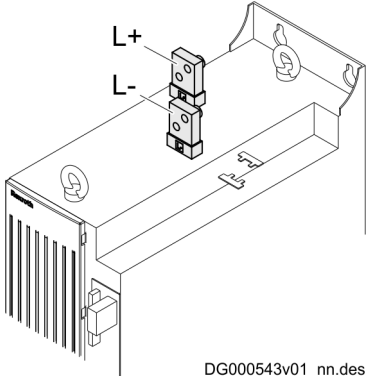
The discharge time can be more than 30 minutes if Y capacitor pairs are used.

Secure the DC bus connections against being touched.

Function, pin assignment

The DC bus connection connects the DC buses of multiple components.

Instructions for use

View	Identifica- tion	Function
 DG000543v01_nn.des	L+ L-	Connections for screwing on DC bus bars Threads on connecting bolt: 2 x M10 Tightening torque: 48 Nm
	Unit	
Dimensions		See component dimensional drawing
Short circuit protection		Upstream fuse elements in mains connection
Overload protection		Upstream fuse elements in mains connection

Tab. 5-10: Function, pin assignment, properties

Notes on installation

Select the connection cross section according to the maximum current load occurring on the DC bus and the installation method for the connections.

NOTICE

Risk of damage by reversing the polarity of the DC bus connections L- and L+

Make sure the polarity is correct.

5.2.11 Shield connection

Control line shield connection

Shield connection for control lines of the control section, motor, etc. whose connectors do not have a shield connection.



Always connect the shields with the largest possible metal-to-metal contact surface.

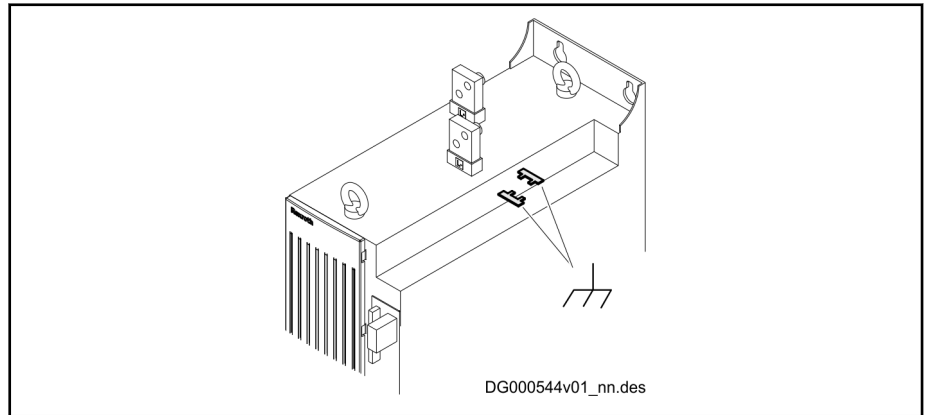


Fig. 5-6: Shield connection of shielded control lines

Motor power cable shield connection

The motor power cable shield is connected at a separate location in the control cabinet and not directly at HMU05.

Instructions for use

5.2.12 Ground connection

The ground connection of the housing is used to provide functional safety of the drive controllers and protection against contact in conjunction with the equipment grounding conductor.

Ground the housings of the drive controllers:

1. Connect the bare metal back panel of the drive controller in conductive form to the mounting surface in the control cabinet. To do this, use the supplied mounting screws.
2. Connect the mounting surface of the control cabinet in conductive form to the equipment grounding system.
3. For the ground connection, observe the maximum allowed ground resistance.

5.2.13 WATER IN/OUT, cooling liquid connection

View	ID	Function		
	WATER IN	Supply		
	WATER OUT	Return		
	Symbol	Unit	Min.	Max.
Connecting thread			G1/2"	
Coolant inlet temperature	T _{in}	°C	Ambient temperature - 5 K	60
Permitted operating pressure	p _{max}	bar	-	2

Tab. 5-11: Function, properties

NOTICE

Risk of damage. Drive components cannot build condensation.

In temperate zones (up to 40°C and 70% humidity), the inlet temperature of the coolant may be at a maximum 5 K below the temperature in the control cabinet.

Safest protection against condensation:

Coolant inlet temperature = ambient temperature

Condensation protection

Refer to the information on condensation protection.

5.3 Installation

5.3.1 General information on how to install the drive controller

⚠ WARNING

Lethal electric shock by live parts with more than 50 V!

Before working on live parts: De-energize installation and secure power switch against unintentional or unauthorized re-energization.

Wait at least **30 minutes** after switching off the supply voltages to allow **discharging**.

Check whether voltage has fallen below 50 V before touching live parts!

Instructions for use

Damage can be caused to the drive controller or circuit boards if electrostatic charging present in people and/or tools is discharged across them. For this reason, please observe the following information:

NOTICE

Electrostatic charges can cause damage to electronic components and interfere with their operational safety!

Exposed conductive parts coming into contact with components and circuit boards must be discharged by means of grounding. Otherwise errors may occur when controlling motors and moving elements.

Such exposed conductive parts include:

- The copper bit when soldering
- The human body (ground connection by touching a conductive, grounded object)
- Parts and tools (place them on a conductive support)

Endangered components may only be stored or dispatched in conductive packaging.



Rexroth connection diagrams are only to be used for producing installation circuit diagrams! The machine manufacturer's installation circuit diagrams must be used for wiring the installation!

- Lay signal lines separately from the load resistance lines because of the occurrence of interference.
- Transmit analog signals (e.g. command values, actual values) via shielded lines.
- Do not connect mains, DC bus or power cores to low voltages or allow them to come into contact with these.
- When carrying out a high voltage test or an applied-overvoltage withstand test on the machine's electrical equipment, disconnect all connections to the devices. This protects the electronic components (allowed in accordance with EN 60204-1). During their routine testing, Rexroth drive components are tested for high voltage (in accordance with EN 61800-5-1:2007, section 5.2.3.2) and insulation (in accordance with EN 60204-1:2006, section 18.3).

NOTICE

Risk of damage to the drive controller by connecting and disconnecting live connections!

Do not connect and disconnect live connections.

5.3.2 Mounting HMU05 devices in control cabinet

HMU05 drive controllers were designed to be mounted in control cabinets.

Notes on mounting

- When mounting, observe the mandatory **minimum distances** between components.
- Mounting kit: HAS08.1-008-NNN-MH
- Mounting accessories:
 - Mounting plate for device width 200 mm: HAS10.1-002-005
 - Mounting plate for device width 220 mm: HAS10.1-002-006

6 Accessories

Accessories	Note
HAS03: Mounting and connection accessories	For mounting an HNA05
HAS08: Cabinet installation kit	For mounting an HMU05
HAS10: Blank covers, motor monitor grounding, mounting plates	

Tab. 6-1: Accessories - overview

Function	Cables
IndraBus	RKB0035 (shielded, < 100 m) RKB0036 (shielded, < 3 m)
HNA bus	RKB0037
Connection between HPC01.1-P001-NN parallel connecting modules	RKB0038

Tab. 6-2: Cables - overview

Type	Additional components
HAH01	Heat exchanger
HLL05	DC bus choke
HMF05	Motor filter
HML05	Motor choke
HNA05	Mains connection module
HNC05	Mains capacitor
HNF05	Mains filter
HNL05	Mains choke
HLR05	Braking resistor
HLT05	Braking unit

Tab. 6-3: Additional components - overview

7 Service and support

Our worldwide service network provides an optimized and efficient support. Our experts offer you advice and assistance should you have any queries. You can contact us **24/7**.

Service Germany Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Hotline** and **Service Helpdesk** under:

Phone: **+49 9352 40 5060**
Fax: **+49 9352 18 4941**
E-mail: service.svc@boschrexroth.de
Internet: <http://www.boschrexroth.com/>

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

Service worldwide Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

Preparing information To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances
- Type plate specifications of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your e-mail address)

8 Environmental protection and disposal

8.1 Environmental protection

Production processes	The products are made with energy- and resource-optimized production processes which allow re-using and recycling the resulting waste. We regularly try to replace pollutant-loaded raw materials and supplies by more environment-friendly alternatives.														
No release of hazardous substances	Our products do not contain any hazardous substances which may be released in the case of appropriate use. Normally, our products will not have any negative influences on the environment.														
Significant components	Basically, our products contain the following components: <table> <tr> <td>Electronic devices</td><td>Motors</td></tr> <tr> <td>• steel</td><td>• steel</td></tr> <tr> <td>• aluminum</td><td>• aluminum</td></tr> <tr> <td>• copper</td><td>• copper</td></tr> <tr> <td>• synthetic materials</td><td>• brass</td></tr> <tr> <td>• electronic components and modules</td><td>• magnetic materials</td></tr> <tr> <td></td><td>• electronic components and modules</td></tr> </table>	Electronic devices	Motors	• steel	• steel	• aluminum	• aluminum	• copper	• copper	• synthetic materials	• brass	• electronic components and modules	• magnetic materials		• electronic components and modules
Electronic devices	Motors														
• steel	• steel														
• aluminum	• aluminum														
• copper	• copper														
• synthetic materials	• brass														
• electronic components and modules	• magnetic materials														
	• electronic components and modules														

8.2 Disposal

Return of products	Our products can be returned to our premises free of charge for disposal. It is a precondition, however, that the products are free of oil, grease or other dirt. Furthermore, the products returned for disposal must not contain any undue foreign material or foreign components. Send the products "free domicile" to the following address: Bosch Rexroth AG Electric Drives and Controls Buergermeister-Dr.-Nebel-Strasse 2 97816 Lohr am Main, Germany
Packaging	The packaging materials consist of cardboard, wood and polystyrene. These materials can be recycled anywhere without any problem. For ecological reasons, please refrain from returning the empty packages to us.
Batteries and accumulators	Batteries and accumulators can be labeled with this symbol.  The symbol indicating "separate collection" for all batteries and accumulators is the crossed-out wheeled bin. The end user within the EU is legally obligated to return used batteries. Outside the validity of the EU Directive 2006/66/EC keep the stipulated directives. Used batteries can contain hazardous substances, which can harm the environment or the people's health when they are improperly stored or disposed of. After use, the batteries or accumulators contained in Rexroth products have to be properly disposed of according to the country-specific collection.
Recycling	Most of the products can be recycled due to their high content of metal. In order to recycle the metal in the best possible way, the products must be disassembled into individual modules.

Environmental protection and disposal

Metals contained in electric and electronic modules can also be recycled by means of special separation processes.

Products made of plastics can contain flame retardants. These plastic parts are labeled according to EN ISO 1043. They have to be recycled separately or disposed of according to the valid legal requirements.

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