

MSD

Synchronous Direct Drive Motors

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Supplemental directives

| Deutsch | English | Français |
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| <p>▲ WARNUNG Lebensgefahr bei Nichtbeachtung der nachstehenden Sicherheitshinweise!</p> <p>Nehmen Sie die Produkte erst dann in Betrieb, nachdem Sie die mit dem Produkt gelieferten Unterlagen und Sicherheitshinweise vollständig durchgelesen, verstanden und beachtet haben.</p> <p>Sollten Ihnen keine Unterlagen in Ihrer Landessprache vorliegen, wenden Sie sich an Ihren zuständigen Rexroth-Vertriebspartner.</p> <p>Nur qualifiziertes Personal darf an Antriebskomponenten arbeiten.</p> <p>Nähere Erläuterungen zu den Sicherheitshinweisen entnehmen Sie Kapitel 1 dieser Dokumentation.</p> | <p>▲ WARNING Danger to life in case of non-compliance with the below-mentioned safety instructions!</p> <p>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.</p> <p>If no documents in your language were supplied, please consult your Rexroth sales partner.</p> <p>Only qualified persons may work with drive components.</p> <p>For detailed explanations on the safety instructions, see chapter 1 of this documentation.</p> | <p>▲ AVERTISSEMENT Danger de mort en cas de non-respect des consignes de sécurité figurant ci-après !</p> <p>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.</p> <p>Si vous ne disposez pas de la documentation dans votre langue, merci de consulter votre partenaire Rexroth.</p> <p>Seul un personnel qualifié est autorisé à travailler sur les composants d'entraînement.</p> <p>Vous trouverez des explications plus détaillées relatives aux consignes de sécurité au chapitre 1 de la présente documentation.</p> |
| <p>▲ WARNUNG Hohe elektrische Spannung! Lebensgefahr durch elektrischen Schlag!</p> <p>Betreiben Sie Antriebskomponenten nur mit fest installiertem Schutzleiter.</p> <p>Schalten Sie vor Zugriff auf Antriebskomponenten die Spannungsversorgung aus.</p> <p>Beachten Sie die Entladezeiten von Kondensatoren.</p> | <p>▲ WARNING High electrical voltage! Danger to life by electric shock!</p> <p>Only operate drive components with a permanently installed equipment grounding conductor.</p> <p>Disconnect the power supply before accessing drive components.</p> <p>Observe the discharge times of the capacitors.</p> | <p>▲ AVERTISSEMENT Tensions électriques élevées ! Danger de mort par électrocution !</p> <p>N'exploitez les composants d'entraînement que si un conducteur de protection est installé de manière permanente.</p> <p>Avant d'intervenir sur les composants d'entraînement, coupez toujours la tension d'alimentation.</p> <p>Tenez compte des délais de décharge de condensateurs.</p> |
| <p>▲ WARNUNG Gefährbringende Bewegungen! Lebensgefahr!</p> <p>Halten Sie sich nicht im Bewegungsbereich von Maschinen und Maschinenteilen auf.</p> <p>Verhindern Sie den unbeabsichtigten Zutritt für Personen.</p> <p>Bringen Sie vor dem Zugriff oder Zutritt in den Gefahrenbereich die Antriebe sicher zum Stillstand.</p> | <p>▲ WARNING Dangerous movements! Danger to life!</p> <p>Keep free and clear of the ranges of motion of machines and moving machine parts.</p> <p>Prevent personnel from accidentally entering the range of motion of machines.</p> <p>Make sure that the drives are brought to safe standstill before accessing or entering the danger zone.</p> | <p>▲ AVERTISSEMENT Mouvements entraînant une situation dangereuse ! Danger de mort !</p> <p>Ne séjournez pas dans la zone de mouvement de machines et de composants de machines.</p> <p>Évitez tout accès accidentel de personnes.</p> <p>Avant toute intervention ou tout accès dans la zone de danger, assurez-vous de l'arrêt préalable de tous les entraînements.</p> |

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| <p>▲WARNING Elektromagnetische / magnetische Felder! Gesundheitsgefahr für Personen mit Herzschrittmachern, metallischen Implantaten oder Hörgeräten!</p> <p>Zutritt zu Bereichen, in denen Antriebskomponenten montiert und betrieben werden, ist für oben genannten Personen untersagt bzw. nur nach Rücksprache mit einem Arzt erlaubt.</p> | <p>▲WARNING Electromagnetic / magnetic fields! Health hazard for persons with heart pacemakers, metal implants or hearing aids!</p> <p>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.</p> | <p>▲AVERTISSEMENT Champs électromagnétiques / magnétiques ! Risque pour la santé des porteurs de stimulateurs cardiaques, d'implants métalliques et d'appareils auditifs !</p> <p>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.</p> |
| <p>▲VORSICHT Heiße Oberflächen (> 60 °C)! Verbrennungsgefahr!</p> <p>Vermeiden Sie das Berühren von metallischen Oberflächen (z. B. Kühlkörpern). Abkühlzeit der Antriebskomponenten einhalten (mind. 15 Minuten).</p> | <p>▲CAUTION Hot surfaces (> 60 °C [140 °F])! Risk of burns!</p> <p>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).</p> | <p>▲ATTENTION Surfaces chaudes (> 60 °C)! Risque de brûlure !</p> <p>Évitez de toucher des surfaces métalliques (p. ex. dissipateurs thermiques). Respectez le délai de refroidissement des composants d'entraînement (au moins 15 minutes).</p> |
| <p>▲VORSICHT Unsachgemäße Handhabung bei Transport und Montage! Verletzungsgefahr!</p> <p>Verwenden Sie geeignete Montage- und Transporteinrichtungen.</p> <p>Benutzen Sie geeignetes Werkzeug und persönliche Schutzausrüstung.</p> | <p>▲CAUTION Improper handling during transport and mounting! Risk of injury!</p> <p>Use suitable equipment for mounting and transport.</p> <p>Use suitable tools and personal protective equipment.</p> | <p>▲ATTENTION Manipulation incorrecte lors du transport et du montage ! Risque de blessure !</p> <p>Utilisez des dispositifs de montage et de transport adéquats.</p> <p>Utilisez des outils appropriés et votre équipement de protection personnel.</p> |
| <p>▲VORSICHT Unsachgemäße Handhabung von Batterien! Verletzungsgefahr!</p> <p>Versuchen Sie nicht, leere Batterien zu reaktivieren oder aufzuladen (Explosions- und Verätzungsgefahr).</p> <p>Zerlegen oder beschädigen Sie keine Batterien. Werfen Sie Batterien nicht ins Feuer.</p> | <p>▲CAUTION Improper handling of batteries! Risk of injury!</p> <p>Do not attempt to reactivate or recharge low batteries (risk of explosion and chemical burns).</p> <p>Do not dismantle or damage batteries. Do not throw batteries into open flames.</p> | <p>▲ATTENTION Manipulation incorrecte de piles! Risque de blessure!</p> <p>N'essayez pas de réactiver des piles vides ou de les charger (risque d'explosion et de brûlure par acide).</p> <p>Ne désassemblez et n'endommagez pas les piles. Ne jetez pas des piles dans le feu.</p> |

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| <p>▲ ADVERTENCIA ¡Peligro de muerte en caso de no observar las siguientes indicaciones de seguridad!</p> <p>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.</p> <p>Si no dispusiera de documentación en el idioma de su país, diríjase a su distribuidor competente de Rexroth.</p> <p>Solo el personal debidamente cualificado puede trabajar en componentes de accionamiento.</p> <p>Encontrará más detalles sobre las indicaciones de seguridad en el capítulo 1 de esta documentación.</p> | <p>▲ ATENÇÃO Perigo de vida em caso de inobservância das seguintes instruções de segurança!</p> <p>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.</p> <p>Se não tiver disponível a documentação na sua língua, dirija-se ao seu parceiro de venda responsável da Rexroth.</p> <p>Apenas pessoal qualificado pode trabalhar nos componentes de acionamento.</p> <p>Explicações mais detalhadas relativamente às instruções de segurança constam no capítulo 1 desta documentação.</p> | <p>▲ AVVERTENZA Pericolo di morte in caso di inosservanza delle seguenti indicazioni di sicurezza!</p> <p>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.</p> <p>Se non dovesse essere presente la documentazione nella vostra lingua, siete pregati di rivolgervi al rivenditore Rexroth competente.</p> <p>Solo personale qualificato può eseguire lavori sui componenti di comando.</p> <p>Per ulteriori spiegazioni riguardanti le indicazioni di sicurezza consultare il capitolo 1 di questa documentazione.</p> |
| <p>▲ ADVERTENCIA ¡Alta tensión eléctrica! ¡Peligro de muerte por descarga eléctrica!</p> <p>Active sólo los componentes de accionamiento con el conductor protector firmemente instalado.</p> <p>Desconecte la alimentación eléctrica antes de manipular los componentes de accionamiento.</p> <p>Tenga en cuenta los tiempos de descarga de los condensadores.</p> | <p>▲ ATENÇÃO Alta tensão elétrica! Perigo de vida devido a choque elétrico!</p> <p>Opere componentes de accionamento apenas com condutores de proteção instalados.</p> <p>Desligue a alimentação de tensão antes de aceder aos componentes de accionamento.</p> <p>Respeite os períodos de descarga dos condensadores.</p> | <p>▲ AVVERTENZA Alta tensione elettrica! Pericolo di morte in seguito a scosse elettriche!</p> <p>Mettere in esercizio i componenti di comando solo con conduttore di messa a terra ben installato.</p> <p>Staccare l'alimentazione prima di intervenire sui componenti di comando.</p> <p>Osservare i tempi di scarica del condensatore.</p> |
| <p>▲ ADVERTENCIA ¡Movimientos peligrosos! ¡Peligro de muerte!</p> <p>No permanezca en la zona de movimiento de las máquinas ni de sus piezas.</p> <p>Impida el acceso accidental de personas.</p> <p>Antes de acceder o introducir las manos en la zona de peligro, los accionamientos se tienen que haber parado con seguridad.</p> | <p>▲ ATENÇÃO Movimentos perigosos! Perigo de vida!</p> <p>Não permaneça na área de movimentação das máquinas e das peças das máquinas.</p> <p>Evite o acesso involuntário para pessoas.</p> <p>Antes de entrar ou aceder à área perigosa, imobilize os accionamentos de forma segura.</p> | <p>▲ AVVERTENZA Movimenti pericolosi! Pericolo di morte!</p> <p>Non sostare nelle zone di manovra delle macchine e delle loro parti.</p> <p>Impedire un accesso non autorizzato per le persone.</p> <p>Prima di accedere alla zona di pericolo, arrestare e bloccare gli azionamenti.</p> |
| <p>▲ ADVERTENCIA ¡Campos electromagnéticos/magnéticos! ¡Peligro para la salud de las personas con marcapasos, implantes metálicos o audífonos!</p> <p>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.</p> | <p>▲ ATENÇÃO Campos eletromagnéticos / magnéticos! Perigo de saúde para pessoas com marcapassos, implantes metálicos ou aparelhos auditivos!</p> <p>Acesso às áreas, nas quais os componentes de accionamento são montados e operados, é proibido para as pessoas em cima mencionadas ou apenas após permissão de um médico.</p> | <p>▲ AVVERTENZA Campi elettromagnetici / magnetici! Pericolo per la salute delle persone portatrici di pacemaker, protesi metalliche o apparecchi acustici!</p> <p>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.</p> |

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| <p>⚠ ATENCIÓN ¡Superficies calientes (> 60 °C)! ¡Peligro de quemaduras!</p> <p>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).</p> | <p>⚠ CUIDADO Superfícies quentes (> 60 °C)! Perigo de queimaduras!</p> <p>Evite tocar superfícies metálicas (p. ex. radiadores). Respeite o tempo de arrefecimento dos componentes de accionamento (mín. 15 minutos).</p> | <p>⚠ ATTENZIONE Superfici bollenti (> 60 °C)! Pericolo di ustioni!</p> <p>Evitare il contatto con superfici metalliche (ad es. dissipatori di calore). Rispettare i tempi di raffreddamento dei componenti di comando (almeno 15 minuti).</p> |
| <p>⚠ ATENCIÓN ¡Manipulación inadecuada en el transporte y montaje! ¡Peligro de lesiones!</p> <p>Utilice dispositivos de montaje y de transporte adecuados.</p> <p>Utilice herramientas adecuadas y equipo de protección personal.</p> | <p>⚠ CUIDADO Manejo incorreto no transporte e montagem! Perigo de ferimentos!</p> <p>Utilize dispositivos de montagem e de transporte adequados.</p> <p>Utilize ferramentas e equipamento de proteção individual adequados.</p> | <p>⚠ ATTENZIONE Manipolazione inappropriata durante il trasporto e il montaggio! Pericolo di lesioni!</p> <p>Utilizzare dispositivi di montaggio e trasporto adatti.</p> <p>Utilizzare attrezzi adatti ed equipaggiamento di protezione personale.</p> |
| <p>⚠ ATENCIÓN ¡Manejo inadecuado de las pilas! ¡Peligro de lesiones!</p> <p>No trate de reactivar o cargar pilas descargadas (peligro de explosión y cauterización).</p> <p>No desarme ni dañe las pilas. No tire las pilas al fuego.</p> | <p>⚠ CUIDADO Manejo incorreto de baterias! Perigo de ferimentos!</p> <p>Não tente reativar nem carregar baterias vazias (perigo de explosão e de queimaduras com ácido).</p> <p>Não desmonte nem danifique as baterias. Não deite as baterias no fogo.</p> | <p>⚠ ATTENZIONE Utilizzo inappropriato delle batterie! Pericolo di lesioni!</p> <p>Non tentare di riattivare o ricaricare batterie scariche (pericolo di esplosione e corrosione).</p> <p>Non scomporre o danneggiare le batterie. Non gettare le batterie nel fuoco.</p> |

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| <p>⚠ VARNING Livsfara om följande säkerhetsanvisningar inte följs!</p> <p>Använd inte produkterna innan du har läst och förstått den dokumentation och de säkerhetsanvisningar som medföljer produkten, och följ alla anvisningar.</p> <p>Kontakta din Rexroth-återförsäljare om dokumentationen inte medföljer på ditt språk.</p> <p>Endast kvalificerad personal får arbeta med drivkomponenterna.</p> <p>Se kapitel 1 i denna dokumentation för närmare beskrivningar av säkerhetsanvisningarna.</p> | <p>⚠ ADVARSEL Livsfare ved manglende overholdelse af nedenstående sikkerhedsanvisninger!</p> <p>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.</p> <p>Kontakt din Rexroth-forhandler, hvis dokumentationen ikke medfølger på dit sprog.</p> <p>Det er kun kvalificeret personale, der må arbejde på drive components.</p> <p>Nærmere forklaringer til sikkerhedsanvisningerne fremgår af kapitel 1 i denne dokumentation.</p> | <p>⚠ WAARSCHUWING Levensgevaar bij niet-naleving van onderstaande veiligheidsinstructies!</p> <p>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.</p> <p>Mocht u niet beschikken over documenten in uw landstaal, kunt u contact opnemen met uw plaatselijke Rexroth distributiepartner.</p> <p>Uitsluitend gekwalificeerd personeel mag aan de aandrijvingscomponenten werken.</p> <p>Meer informatie over de veiligheidsinstructies vindt u in hoofdstuk 1 van deze documentatie.</p> |

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| <p>▲ VARNING Hög elektrisk spänning! Livsfara genom elchock!</p> <p>Använd endast drivkomponenterna med fast-monterad skyddsledare.</p> <p>Koppla bort spänningsförsörjningen före arbete på drivkomponenter.</p> <p>Var medveten om kondensatorernas urladdningstid.</p> | <p>▲ ADVARSEL Elektrisk højspænding! Livsfare på grund af elektrisk stød!</p> <p>Drive components må kun benyttes med et fast installeret jordstik.</p> <p>Sørg for at koble spændingsforsyningen fra, inden du rører ved drive components.</p> <p>Overhold kondensatorernes afladningstider.</p> | <p>▲ WAARSCHUWING Hoge elektrische spanning! Levensgevaar door elektrische schok!</p> <p>Bedien de aandrijvingscomponenten uitsluitend met vast geïnstalleerde aardleiding.</p> <p>Schakel voor toegang tot aandrijvingscomponenten de spanningsvoorziening uit.</p> <p>Neem de ontladtid van de condensatoren in acht.</p> |
| <p>▲ VARNING Farliga rörelser! Livsfara!</p> <p>Uppehåll dig inte inom maskiners och maskinörens rörelseområde.</p> <p>Förhindra att obehöriga personer får tillträde.</p> <p>Innan du börjar arbeta eller vistas inom drivsystemets riskområde måste maskinen vara stillastående.</p> | <p>▲ ADVARSEL Farlige bevægelser! Livsfare!</p> <p>Du må ikke opholde dig inden for maskiners og maskinörens bevægelsesradius.</p> <p>Sørg for, at ingen personer kan få utilsigtet adgang.</p> <p>Stands drevene helt, inden du rører ved drevene eller træder ind i deres fareområde.</p> | <p>▲ WAARSCHUWING Risicovolle bewegingen! Levensgevaar!</p> <p>Houdt u niet op in het bewegingsbereik van machines en machineonderdelen.</p> <p>Voor kom dat personen onbedoeld toegang verkrijgen.</p> <p>Voor toegang tot de gevaarlijke zone moeten de aandrijvingen veilig tot stilstand gebracht zijn.</p> |
| <p>▲ VARNING Elektromagnetiska/magnetiska fält! Hälssofaror för personer med pacemaker, implantat av metall eller hörapparat!</p> <p>Det är förbjudet för ovan nämnda personer (eller kräver överläggning med läkare) att beträda områden där drivkomponenter är monterade och i drift.</p> | <p>▲ ADVARSEL Elektromagnetiske/magnetiske felter! Sundhedsfare for personer med pacemakere, metalliske implantater eller høreapparater!</p> <p>For disse personer er der adgang forbudt eller kun adgang med tilladelse fra læge til de områder, hvor drive components monteres og drives.</p> | <p>▲ WAARSCHUWING Elektromagnetische / magnetische velden! Gevaar voor de gezondheid van personen met pacemakers, metalen implantaten of hoorapparaten!</p> <p>Toegang tot gebieden, waarin aandrijvingscomponenten worden gemonteerd en bediend, is verboden voor voornoemde personen of uitsluitend toegestaan na overleg met een arts.</p> |
| <p>▲ OBSERVERA Varma ytor (> 60 °C)! Risk för brännskador!</p> <p>Undvik att vidröra metalltytor (t.ex. kylelement). Var medveten om att det tar tid för drivkomponenterna att svalna (minst 15 minuter).</p> | <p>▲ FORSIGTIG Varme overflader (> 60 °C)! Risiko for forbrændinger!</p> <p>Undgå at berøre metaloverflader (f.eks. køleelementer). Overhold drive components nedkølingstid (min. 15 min.).</p> | <p>▲ VOORZICHTIG Hete oppervlakken (> 60 °C)! Verbrandingsgevaar!</p> <p>Voor kom contact met metalen oppervlakken (bijv. Koellichamen). Afkoeltijd van de aandrijvingscomponenten in acht nemen (min. 15 minuten).</p> |
| <p>▲ OBSERVERA Felaktigt hantering vid transport och montering! Skaderisk!</p> <p>Använd passande monterings- och transportanordningar.</p> <p>Använd lämpliga verktyg och personlig skyddsutrustning.</p> | <p>▲ FORSIGTIG Fejlhåndtering ved transport og montering! Risiko for kvæstelser!</p> <p>Benyt egnede monterings- og transportanordninger.</p> <p>Benyt egnet værktøj og personligt sikkerhedsudstyr.</p> | <p>▲ VOORZICHTIG Onjuist gebruik bij transport en montage! Letselgevaar!</p> <p>Gebruik geschikte montage- en transportinrichtingen.</p> <p>Gebruik geschikt gereedschap en een persoonlijke veiligheidsuitrusting.</p> |

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| ▲ OBSERVERA Felaktigt hantering av batterier! Skaderisk! | ▲ FORSIGTIG Fejlhåndtering af batterier! Risiko for kvæstelser! | ▲ VOORZICHTIG Onjuist gebruik van batterijen! Letselgevaar! |
| Försök inte återaktivera eller ladda upp batterier (risk för explosioner och frätskador). Batterierna får inte tas isär eller skadas. Släng inte batterierna i elden. | 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. | 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. |

| Suomi | Polski | Český |
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| ▲VAROITUS Näiden turvaohjeiden noudattamatta jättämisestä on seurauksena hengenvaara! | ▲ OSTRZEŻENIE Zagrożenie życia w razie nieprzestrzegania poniższych wskazówek bezpieczeństwa! | ▲VAROVÁNÍ Nebezpečí života v případě nedodržení níže uvedených bezpečnostních pokynů! |
| 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 äidinkielenlläsi, ota yhteys asianomaiseen Rexrothin myyntiedustajaan. Käyttölaitteiden komponenttien parissa saa työskennellä ainoastaan valtuutettu henkilöstö. Lisätietoa turvaohjeista löydät tämän dokumentaation luvusta 1. | 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. Bliższe objaśnienia wskazówek bezpieczeństwa znajdują się w Rozdziale 1 niniejszej dokumentacji. | 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! | ▲ OSTRZEŻENIE Wysokie napięcie elektryczne! Zagrożenie życia w wyniku porażenia prądem! | ▲VAROVÁNÍ Vysoké elektrické napětí! Nebezpečí života při zasažení elektrickým proudem! |
| Käytä käyttölaitteen komponentteja ainoastaan maadoitusohjeen ollessa kiinteästi asennettuna. Katkaise jännitteensyöttö ennen käyttölaitteen komponenteille suoritettavien töiden aloittamista. Huomioi kondensaattoreiden purkausajat. | 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. | Komponenty pohonu smí být v provozu pouze s pevně nainstalovaným ochranným vodičem. Než začnete zasahovat do komponent pohonu, odpojte je od elektrického napájení. Dodržujte vybijecí časy kondenzátorů. |

| Suomi | Polski | Český |
|---|--|---|
| <p>▲VAROITUS Vaarallisia liikkeitä! Hengen vaara!</p> <p>Älä oleskele koneiden tai koneenosien liikealueella.</p> <p>Pidä huolta siitä, ettei muita henkilöitä pääse alueelle vahingossa.</p> <p>Pysäytä käyttölaitteet varmasti ennen vaara-alueelle koskemista tai menemistä.</p> | <p>▲OSTRZEŻENIE Niebezpieczne ruchy! Zagrożenie życia!</p> <p>Nie wolno przebywać w obszarze pracy maszyny i jej elementów.</p> <p>Nie dopuszczać osób niepowołanych do obszaru pracy maszyny.</p> <p>Przed dotknięciem urządzenia/maszyny lub zbliżeniem się do obszaru zagrożenia należy zgodnie z zasadami bezpieczeństwa wyłączyć napędy.</p> | <p>▲VAROVÁNÍ Nebezpečné pohyby! Nebezpečí života!</p> <p>Nezdržujte se v dosahu pohybu strojů a jejich součástí.</p> <p>Zabraňte náhodnému přístupu osob.</p> <p>Před zásahem nebo vstupem do nebezpečného prostoru bezpečně zastavte pohony.</p> |
| <p>▲VAROITUS Sähkömagneettisia/magneettisia kenttiä! Terveystieteiden haittojen vaara henkilöille, joilla on sydämentahdistin, metallinen implantti tai kuulolaitte!</p> <p>Yllä mainituilta henkilöiltä on pääsy kielletty alueille, joilla asennetaan tai käytetään käyttölaitteen komponentteja, tai heidän on ensintavasta tähän suostumus lääkäriltään.</p> | <p>▲OSTRZEŻENIE Pola elektromagnetyczne / magnetyczne! Zagrożenie zdrowia dla osób z rozrusznikiem serca, metalowymi implantami lub aparatami słuchowymi!</p> <p>Wstęp na teren, gdzie odbywa się montaż i eksploatacja napędów jest dla ww. osób zabroniony względnie dozwolony po konsultacji z lekarzem.</p> | <p>▲VAROVÁNÍ Elektromagnetická/magnetická pole! Nebezpečí pro zdraví osob s kardiostimulátory, kovovými implantáty nebo naslouchadly!</p> <p>Výše uvedené osoby mají zakázán přístup do prostorů, kde jsou montovány a používány komponenty pohonu, resp. ho mají povolen pouze po poradě s lékařem.</p> |
| <p>▲HUOMIO Kuumia pintoja (> 60 °C)! Palovammojen vaara!</p> <p>Vältä metallipintojen koskettamista (esim. jäähdytyslevyt). Noudata käyttölaitteen komponenttien jäähtymisaikojia (väh. 15 minuuttia).</p> | <p>▲PRZESTROGA Gorące powierzchnie (> 60 °C)! Niebezpieczeństwo poparzenia!</p> <p>Unikać kontaktu z powierzchniami metalowymi (np. radiatorami). Przestrzegać czasów schładzania podzespołów napędów (min. 15 minut).</p> | <p>▲UPOZORNĚNÍ Horké povrchy (> 60 °C)! Nebezpečí popálení!</p> <p>Nedotýkejte se kovových povrchů (např. chladičích těles). Dodržujte dobu ochlazení komponentu pohonu (min. 15 minut).</p> |
| <p>▲HUOMIO Epäasianmukainen käsittely kuljetuksen ja asennuksen yhteydessä! Loukkaantumisvaara!</p> <p>Käytä soveltuvia asennus- ja kuljetuslaitteita.</p> <p>Käytä omia työkaluja ja henkilökohtaisia suojavausteita.</p> | <p>▲PRZESTROGA Niewłaściwe obchodzenie się podczas transportu i montażu! Ryzyko urazu!</p> <p>Stosować odpowiednie urządzenia montażowe i transportowe.</p> <p>Stosować odpowiednie narzędzia i środki ochrony osobistej.</p> | <p>▲UPOZORNĚNÍ Nesprávné zacházení při přepravě a montáži! Nebezpečí zranění!</p> <p>Používejte vhodná montážní a dopravní zařízení.</p> <p>Používejte vhodné nářadí a osobní ochranné vybavení.</p> |
| <p>▲HUOMIO Paristojen epäasianmukainen käsittely! Loukkaantumisvaara!</p> <p>Älä yritä saada tyhjiä paristoja toimimaan tai ladata niitä uudelleen (räjähdys- ja syöpmisvaara).</p> <p>Älä hajota paristoja osiin tai vaurioita niitä. Älä heitä paristoja tuleen.</p> | <p>▲PRZESTROGA Niewłaściwe obchodzenie się z bateriami! Ryzyko urazu!</p> <p>Nie próbować reaktywować i nie ładować zużytych baterii (niebezpieczeństwo wybuchu oraz poparzenia żrącą substancją).</p> <p>Nie demontować i nie niszczyć baterii. Nie wrzucać baterii do ognia.</p> | <p>▲UPOZORNĚNÍ Nesprávné zacházení s bateriemi! Nebezpečí zranění!</p> <p>Nepokoušejte se znovu aktivovat nebo dobíjet prázdné baterie (nebezpečí výbuchu a poleptání).</p> <p>Nerozebírejte ani nepoškozujte baterie. Neházejte baterie do ohně.</p> |

| Slovensko | Slovenčina | Română |
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| <p>▲ OPOZORILO Življenska nevarnost pri neupoštevanju naslednjih napotkov za varnost!</p> <p>Izdelke začnite uporabljati šele, ko v celoti preberete, razumete in upošteвате izdelkom priloženo dokumentacijo in varnostne napotke.</p> <p>Če priložena dokumentacija ni na voljo v vašem maternem jeziku, se obrnite na pristojnega distributerja Rexroth.</p> <p>Samo kvalificirano osebje sme delati na pogonskih komponentah.</p> <p>Podrobnejša pojasnila o varnostnih navodilih najdete v poglavju 1 v tej dokumentaciji.</p> | <p>▲ VAROVANIE Nebezpečnostv ohrozenia života pri nedodržavaní nasledujúcich bezpečnostných pokynov!</p> <p>Výrobky uvádzajte do prevádzky až potom, čo ste úplne prečítali, pochopili a zobrali do úvahy podklady a bezpečnostné pokyny dodané s výrobkom.</p> <p>Ak by ste nemali k dispozícii žiadne podklady v jazyku svojej krajiny, obráťte sa prosím na svojho príslušného predajcu Rexroth.</p> <p>Na komponentoch pohonu smie pracovať iba kvalifikovaný personál.</p> <p>Blížšie vysvetlenia k bezpečnostným pokynom zistíte z kapitoly 1 tejto dokumentácie.</p> | <p>▲ AVERTIZARE Pericol de moarte în cazul nespectării următoarelor instrucțiuni de siguranță!</p> <p>Punerea în funcțiune a produselor trebuie efectuată după citirea, înțelegerea și respectarea documentelor și instrucțiunilor de siguranță, care sunt livrate împreună cu produsele.</p> <p>În cazul în care documentele nu sunt în limba dumneavoastră maternă, vă rugăm să contactați partenerul de vânzări Rexroth.</p> <p>Numai un personal calificat poate lucra cu componentele de acționare.</p> <p>Explicații detaliate privind instrucțiunile de siguranță găsiți în capitolul 1 al acestei documentații.</p> |
| <p>▲ OPOZORILO Visoka električna napetost! Življenska nevarnost zaradi električnega udara!</p> <p>Pogonske komponente uporabljajte samo s fiksno nameščenim zaščitnim vodnikom.</p> <p>Pred dostopom do pogonske komponente odklopite napajanje.</p> <p>Upošteвайте čase praznjenja kondenzatorjev.</p> | <p>▲ VAROVANIE Vysoké elektrické napätie! Nebezpečnostv ohrozenia života v dôsledku zásahu elektrickým prúdom!</p> <p>Komponenty pohonu prevádzkujte iba s pevne nainštalovaným ochranným vodičom.</p> <p>Pred prístupom na komponenty pohonu odpojte zdroj napätia.</p> <p>Rešpektujte časy vybitia kondenzátorov.</p> | <p>▲ AVERTIZARE Tensiune electrică înaltă! Pericol de moarte prin electrocutare!</p> <p>Exploatați componentele de acționare numai cu împământarea instalată permanent.</p> <p>Înainte de intervenția asupra componentelor de acționare, deconectați alimentarea cu tensiune electrică.</p> <p>Țineți cont de timpii de descărcare ai condensatorilor.</p> |
| <p>▲ OPOZORILO Nevarni premik! Življenska nevarnost!</p> <p>Ne zadržujte se v območju delovanja strojev.</p> <p>Preprečite nenadzorovan dostop oseb.</p> <p>Pred prijemom ali dostopom v nevarno območje varno zaustavite vse gnane dele.</p> | <p>▲ VAROVANIE Pohyby prinášajúce nebezpečnostv! Nebezpečnostv ohrozenia života!</p> <p>Nezdrživajte sa v oblasti pohybu strojov a častí strojov.</p> <p>Zabráňte nepovolanému prístupu obsôb.</p> <p>Pred zásahom alebo prístupom do nebezpečnej oblasti uveďte pohony bezpečne do zastavenia.</p> | <p>▲ AVERTIZARE Mișcări periculoase! Pericol de moarte!</p> <p>Nu staționați în zona de mișcare a mașinilor și a componentelor în mișcare a mașinilor.</p> <p>Împiedicați accesul neintenționat al persoanelor în zona de lucru a mașinilor.</p> <p>Înainte de intervenția sau accesul în zona periculoasă, opriți în siguranță componentele de acționare.</p> |
| <p>▲ OPOZORILO Elektromagnetna / magnetna polja! Nevarnost za zdravje za osebe s spodbujevalniki srca, kovinskimi vsadki ali slušnimi aparati!</p> <p>Dostop do območij, v katerih so nameščene delujoče pogonske komponente, je za zgoraj navedene osebe prepovedan oz. dovoljen samo po posvetu z zdravnikom.</p> | <p>▲ VAROVANIE Elektromagnetické/magnetické polia! Nebezpečnostv pre zdravie osôb s kardiostimulátormi, kovovými implantátmi alebo načúvacími prístrojmi!</p> <p>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.</p> | <p>▲ AVERTIZARE Câmpuri electromagnetice / magnetice! Pericol pentru sănătatea persoanelor cu stimuloare cardiace, implanturi metalice sau aparate auditive!</p> <p>Întrarea 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.</p> |

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| <p>▲ POZOR Vročie povrchu (> 60 °C)! Nevarnost opeklin!</p> <p>Izogibajte se stiku s kovinskimi površinami (npr. hladilnimi telesi). Upošteвайте čas hlajenja pogonskih komponent (najm. 15 minut).</p> | <p>▲ UPOZORNENIE Horúce povrchy (> 60 °C)! Nebezpečnosť popálenia!</p> <p>Zabráňte kontaktu s kovovými povrchmi (napr. chladiacimi telesami). Dodržiavajte čas vychladenia komponentov pohonu (min. 15 minút).</p> | <p>▲ ATENȚIE Suprafețe fierbinți (> 60 °C)! Pericol de arsuri!</p> <p>Nu atingeți suprafețele metalice (de ex. radiatoare de răcire). Respectați timpii de răcire ai componentelor de acționare (min. 15 minute).</p> |
| <p>▲ POZOR Nestrokovno ravnanje med transportom in namestitvijoi! Nevarnost poškodb!</p> <p>Uporablajte ustrezne pripomočke za nameščanje in transport.</p> <p>Uporabite ustrezno orodje in osebno zaščitno opremo.</p> | <p>▲ UPOZORNENIE Neodborná manipulácia pri transporte a montáži! Nebezpečnosť poranenia!</p> <p>Používajte vhodné montážne a transportné zariadenia.</p> <p>Používajte vhodné náradie a osobné ochranné prostriedky.</p> | <p>▲ ATENȚIE Manipulare necorespunzătoare la transport și montaj! Pericol de vătămare!</p> <p>Utilizați dispozitive adecvate de montaj și transport.</p> <p>Folosiți instrumente corespunzătoare și echipament personal de protecție.</p> |
| <p>▲ POZOR Nepravilno ravnanje z baterijami! Nevarnost poškodb!</p> <p>Ne poskušajte ponovno aktivirati ali napolniti praznih baterij (Nevarnost zaradi eksplozij ali jedkanja).</p> <p>Ne razstavljajte ali poškodujte nobenih baterij. Baterij ne mečite v ogenj.</p> | <p>▲ UPOZORNENIE Neodborná manipulácia s batériami! Nebezpečnosť poranenia!</p> <p>Nepokúšajte sa reaktivovať alebo nabíjať prázdne batérie (nebezpečnosť výbuchu a poleptania).</p> <p>Batérie nerozoberajte ani nepoškodujte. Nehádzte batérie do ohňa.</p> | <p>▲ ATENȚIE Manipulare necorespunzătoare a bateriilor! Pericol de vătămare!</p> <p>Nu încercați să reactivați sau să încărcați bateriile goale (pericol de explozie și pericol de arsuri).</p> <p>Nu dezasamblați și nu deteriorați bateriile. Nu aruncați bateriile în foc.</p> |

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| <p>▲ FIGYELMEZTETÉS! Az alábbi biztonsági útmutatások figyelmen kívül hagyása életveszélyes helyzethez vezethet!</p> <p>Üzembe helyezés előtt olvassa el, értelmezze, és vegye figyelembe a csomagban található dokumentumban foglaltakat és a biztonsági útmutatásokat.</p> <p>Amennyiben a csomagban nem talál az Ön nyelvéen írt dokumentumokat, vegye fel a kapcsolatot az illetékes Rexroth-képviselővel.</p> <p>A hajtás alkatrészein kizárólag képzett személy dolgozhat.</p> <p>A biztonsági útmutatókkal kapcsolatban további magyarázatot ennek a dokumentumnak az első fejezetében találhat.</p> | <p>▲ ПРЕДУПРЕЖДЕНИЕ Опасност за живота при неспазване на посочените по-долу инструкции за безопасност!</p> <p>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.</p> <p>Ако текстът не е написан на Вашия език, моля обърнете се към Вашия компетентен търговски представител на Rexroth.</p> <p>Със задвижващите компоненти трябва да работи само квалифициран персонал.</p> <p>Подробни пояснения към инструкциите за безопасност можете да видите в Глава 1 на тази документация.</p> | <p>▲ BRĪDINĀJUMS Turpinājumā doto drošības norādījumu neievērošana var apdraudēt dzīvību!</p> <p>Sāciet lietot izstrādājumu tikai pēc tam, kad esat pilnībā izlasījuši, sapratuši un ņēmuši vērā kopā ar izstrādājumu piegādātos dokumentus.</p> <p>Ja dokumenti nav pieejami Jūsu valsts valodā, vērsieties pie pilnvarotā Rexroth izplatītāja.</p> <p>Darbus pie piedziņas komponentiem drīkst veikt tikai kvalificēts personāls.</p> <p>Detalizētus paskaidrojumus attiecībā uz drošības norādījumiem skatiet šī dokumenta 1. nodaļā.</p> |

| Magyar | Български | Latviski |
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| <p>▲ FIGYELMEZTETÉS! Magas elektromos feszültség! Életveszélyes áramütés miatt!</p> <p>A hajtás alkatrészeit csak véglegesen telepített védővezetővel üzemeltesse!</p> <p>Mielőtt hozzányúl a hajtás alkatrészeihez, kapcsolja ki az áramellátást.</p> <p>Ügyeljen a kondenzátorok kisülési idejére!</p> | <p>▲ ПРЕДУПРЕЖДЕНИЕ Високо електрическо напрежение! Опасност за живота от удар от електрически ток!</p> <p>Работете със задвижващите компоненти само при здраво закрепен заземяващ проводник.</p> <p>Преди работа по задвижващите компоненти, изключете захранващото напрежение.</p> <p>Обърнете внимание на времето за разреждане на кондензаторите.</p> | <p>▲ BRĪDINĀJUMS Augsts elektriskais spriegums! Dzīvības apdraudējums elektriskā trieciena dēļ!</p> <p>Piedziņas komponentus darbiniet tikai ar fiksēti uzstādītu zemējumvadu.</p> <p>Pirms darba pie piedziņas komponentiem atslēdziet elektroapgādi.</p> <p>Nemiet vērā kondensatoru izlādes laikus.</p> |
| <p>▲ FIGYELMEZTETÉS! Veszélyes mozgás! Életveszély!</p> <p>Ne tartózkodjon a gépek és a gépalkatrészek mozgási területén belül!</p> <p>Illetéktelen személyeket ne engedjen a gép közelébe!</p> <p>Mielőtt beavatkozik, vagy a veszélyes zónába belép a hajtásokat biztonságosan állítsa le.</p> | <p>▲ ПРЕДУПРЕЖДЕНИЕ Опасни движения! Опасност за живота!</p> <p>Не стойте в обсега на движение на машините и частите на машините.</p> <p>Не допускайте непреднамерен достъп на хора.</p> <p>Преди работа или влизане в опасната зона, спрете надеждно приводния механизъм.</p> | <p>▲ BRĪDINĀJUMS Bīstamas kustības! Dzīvības apdraudējums!</p> <p>Neuzturieties mašīnu un mašīnas detaļu kustību zonā.</p> <p>Novērsiet nepiederošu personu piekļūšanu.</p> <p>Pirms darba bīstamajās zonās pilnībā apstādiniet piedziņu.</p> |
| <p>▲ FIGYELMEZTETÉS! Elektromágneses / mágneses mező! Káros hatással lehet a szívritmus-szabályozó készülékkel, fémbeültetéssel vagy hallókészülékkel rendelkezők egészségére!</p> <p>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.</p> | <p>▲ ПРЕДУПРЕЖДЕНИЕ Електромагнитни / магнитни полета! Опасност за здравето на хора със сърдечни стимулатори, метални импланти или слухови апарати!</p> <p>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.</p> | <p>▲ BRĪDINĀJUMS Elektromagnētiskais / magnētiskais lauks! Veselības apdraudējums personām ar sirds stimulatoriem, metāliskiem implantiem vai dzirdes aparātiem!</p> <p>Tuvošanās zonām, kurās tiek montēti un darbināti piedziņas komponenti, iepriekš minētajām personām ir aizliegta, respektīvi, atļauta tikai pēc konsultēšanās ar ārstu.</p> |
| <p>▲ VIGYÁZATI Forró felületek (> 60 °C)! Égésveszély!</p> <p>Ne érjen hozzá fémfelületekhez (pl. hűtőtestekhez)! Vegye figyelembe a hajtás alkatrészeinek kihűlési idejét (min. 15 perc)!</p> | <p>▲ ВНИМАНИЕ Горещи повърхности (> 60 °C)! Опасност от изгаряне!</p> <p>Не докосвайте метални повърхности (например радиатори). Съблюдавайте времето на охлаждане на задвижващите компоненти (мин. 15 минути).</p> | <p>▲ UZMANĪBU Karstas virsmas (> 60 °C)! Apdedzināšanās risks!</p> <p>Neskarieties pie metāliskām virsmām (piemēram, dzesētāja). Ļaujiet piedziņas komponentiem atdzist (min. 15 minūtes).</p> |
| <p>▲ VIGYÁZATI Szakszerűtlen kezelés szállító táskor és szereléskor! Sérülésveszély!</p> <p>A megfelelő beszerelési és szállítási eljárásokat alkalmazza!</p> <p>Használjon megfelelő szerszámokat és személyes védőfelszerelést!</p> | <p>▲ ВНИМАНИЕ Неправилно боравене по време на транспорт и монтаж! Опасност от нараняване!</p> <p>Използвайте подходящо монтажно и транспортно оборудване.</p> <p>Използвайте подходящи инструменти и лични предпазни средства.</p> | <p>▲ UZMANĪBU Nepareizi veikta transportēšana un montāža! Traumu gūšanas risks!</p> <p>Izmantojiet piemērotas montāžas un transportēšanas ierīces.</p> <p>Izmantojiet piemērotus instrumentus un individuālos aizsardzības līdzekļus.</p> |

| Magyar | Български | Latviski |
|--|--|--|
| ▲ VIGYÁZATI Akkumulátorok szakszerűtlen kezelése! Sérülésveszély! | ▲ ВНИМАНИЕ Неправилно боравене с батерии! Опасност от нараняване! | ▲ UZMANĪBU Nepareiza bateriju lietošana! Traumu gūšanas risks! |
| Üres akkumulátorokat ne aktiváljon újra, illetve ne töltsön fel (robbanás- és marásveszély)! | Не се опитвайте да активирате отново или да зареждате разредени батерии (Опасност от експлозия и напръскване с агресивен агент). | Neméginiet ne jauna aktivizēt vai uzlādēt tukšas baterijas (eksplodziju un ķīmisko apdegumu draudi). |
| Az akkumulátorokat ne szedje szét, és ne rongálja meg! Az akkumulátort ne dobja tűzbe! | Не разглобявайте и не повреждайте батерии. Не хвърляйте батерии в огън. | Neizjauciet un nesabojājiet baterijas. Nemetiet baterijas ugunī. |

| Lietuviškai | Eesti | Ελληνικά |
|--|---|---|
| ▲ ISPĖJIMAS Pavojus gyvybei nesilaikant toliau pateikiamų saugumo nurodymų! | ▲ HOIATUS Alljärgnevat ohutusjuhiste eiramine on eluohtlik! | ▲ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Κίνδυνος θανάτου σε περίπτωση μη συμμόρφωσης με τις παρακάτω οδηγίες ασφαλείας! |
| Naudokite gaminį tik kruopščiai perskaitę prie jo pridėtus aprašus, saugumo nurodymus. Susipažinkite su jais ir vadovaukitės naudodami gaminį. | Võtke tooted käiku alles siis, kui olete toodetega kaasasolevad materjalid ning ohutusjuhised täielikult läbi lugenud, neist aru saanud ja neid järginud. | Θέστε το προϊόν σε λειτουργία αφού διαβάσετε, κατανοήσετε και λάβετε υπόψη το σύνολο των οδηγιών ασφαλείας που το συνοδεύουν. |
| Jei Jūs negavote aprašo gimtąja kalba, kreipkitės į įgaliotus Rexroth atstovus. | Kui Teil puuduvad emakeelseid materjalid, siis rõõrduge Rexrothi kohaliku müügiesinduse poole. | Εάν δεν υπάρχει τεκμηρίωση στη γλώσσα σας, απευθυνθείτε σε εξουσιοδοτημένο αντιπρόσωπο της Rexroth. |
| Prie pavaros komponentų leidžiama dirbti tik kvalifikuotam personalui. | Ajamikomponentidega tohib töötada üksnes kvalifitseeritud personal. | Μόνο εξειδικευμένο προσωπικό επιτρέπεται να χειρίζεται στοιχεία μετάδοσης κίνησης. |
| Išsamesnius saugumo nurodymų paaiškinimus rasite šios dokumentacijos 1 skyriuje. | Täpsemad selgitusi ohutusjuhiste kohta leiate käesoleva dokumentatsiooni peatükist 1. | Περαιτέρω επεξηγήσεις των οδηγιών ασφαλείας διατίθενται στο κεφάλαιο 1 της παρούσας τεκμηρίωσης. |
| ▲ ISPĖJIMAS Aukšta elektros įtampa! Pavojus gyvybei dėl elektros smūgio! | ▲ HOIATUS Kõrge elektripingel! Eluohtlik elektrilöögi tõttu! | ▲ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Υψηλή ηλεκτρική τάση! Κίνδυνος θανάτου από ηλεκτροπληξία! |
| Pavaros komponentus eksploatuokite tik su fiksuotai instaliuotu apsauginiu laidu. | Käitage ajamikomponente üksnes püsival installleeritud maandusega. | Θέτετε σε λειτουργία τα στοιχεία μετάδοσης κίνησης μόνο εφόσον έχει τοποθετηθεί καλά προστατευτικός αγωγός γείωσης. |
| Prieš priedami prie pavaros komponentų išjunkite maitinimo įtampą. | Lülitage enne ajamikomponentidega tööde alustamist toitepinge välja. | Πριν από οποιαδήποτε παρέμβαση, αποσυνδέστε την τροφοδοσία των στοιχείων μετάδοσης κίνησης. |
| Atsižvelkite į kondensatorių išsikrovimo trukmę. | Järgige kondensaaorite mahalaadumisaegu. | Λάβετε υπόψη τους χρόνους αποφόρτισης των πυκνωτών. |

| | | |
|--|--|--|
| ▲ ISPĖJIMAS Pavojingi judesiai! Pavojus gyvybei! | ▲ HOIATUS Ohtlikud liikumised! Eluohtlik! | ▲ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Επικίνδυνες τάσεις! Κίνδυνος θανάτου! |
| Nebūkite mašinų ar jų dalių judėjimo zonoje. | Ärge viibige masina ja masinaosade liikumispirikonnas. | Μην στέκεστε στην περιοχή κίνησης μηχανημάτων και εξαρτημάτων. |
| Neleiskite netyčia patekti asmenims. | Tõkestage inimeste ettekatvematut sisenumine masina ja masinaosade liikumispirkonda. | Αποτρέπετε την τυχαία είσοδο ατόμων. |
| Prieš patekdami į pavojaus zoną saugiai išjunkite pavaras. | Tagage ajamite turvaline seiskamine enne ohupiirkonda juurdepääsu või sisenumist. | Πριν από την παρέμβαση ή πρόσβαση στην περιοχή κινδύνου, μεριμνήστε για την ασφαλή ακινητοποίηση των συστημάτων μετάδοσης κίνησης. |

| Lietuviškai | Eesti | Ελληνικά |
|---|---|--|
| <p>▲ ĮSPĖJIMAS Elektromagnetiniai / magnetiniai laukai! Pavojus asmenų su širdies stimulatoriais, metaliniais implantais arba klausos aparatais sveikatai!</p> <p>Prieiga prie zonų, kuriose montuojami ir eksploatuojami pavaros komponentai, aukščiau nurodytiems asmenims yra draudžiama arba leistina tik pasitarus su gydytoju.</p> | <p>▲ HOIATUS Elektromagnetilised / magnetilised väljald! Terviseohtlik südamestimulaatorite, metallimplantaatide ja kuulmisseedmetega inim-estele!</p> <p>Sisenemine piirkondadesse, kus toimub ajami-komponentide monteerimine ja käitamine, on ülalnimetatud isikutele keelatud või lubatud üksnes pärast arstiga konsulteerimist.</p> | <p>▲ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Ηλεκτρομαγνητικά/ μαγνητικά πεδία! Κίνδυνος για την υγεία ατόμων με καρδιακούς βηματοδότες, μεταλλικά εμφυτεύματα ή συσκευές ακοής!</p> <p>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.</p> |
| <p>▲ PERSPĖJIMAS Karšti paviršiai (> 60 °C)! Nudėgimo pavojus!</p> <p>Venkite liesti metalinius paviršius (pvz., radiatorių). Išlaikykite pavaros komponentų atvėsimą trukmę (bent 15 minučių).</p> | <p>▲ ETTEVAATUST Kuumad välispinnad (> 60 °C)! Põletusohht!</p> <p>Vältige metallsete välispindade (nt radiaatorid) puudutamist. Pidaage kinni ajamikomponentide mahajahutumisajast (vähemalt 15 minutit).</p> | <p>▲ ΠΡΟΣΟΧΗ Καυτές επιφάνειες (> 60 °C)! Κίνδυνος εγκαύματος!</p> <p>Αποφεύγετε την επαφή με μεταλλικές επιφάνειες (π.χ. μονάδες ψύξης). Λάβετε υπόψη το χρόνο ψύξης των στοιχείων μετάδοσης κίνησης (τουλάχιστον 15 λεπτά).</p> |
| <p>▲ PERSPĖJIMAS Netinkamas darbas transportuojant ir montuojant! Susižalojimo pavojus!</p> <p>Naudokite tinkamus montavimo ir transportavimo įrenginius.</p> <p>Naudokite tinkamus įrankius ir asmens saugos priemones.</p> | <p>▲ ETTEVAATUST Asjatundmatu käsitemine transportimisel ja montaaži! Vigastusohht!</p> <p>Kasutage sobivaid montaaži- ja transpordiseadiseid.</p> <p>Kasutage sobivaid tööriistu ja isiklikku kaitsevarustust.</p> | <p>▲ ΠΡΟΣΟΧΗ Ακατάλληλος χειρισμός κατά τη μεταφορά και συναρμολόγηση! Κίνδυνος τραυματισμού!</p> <p>Χρησιμοποιείτε κατάλληλους μηχανισμούς συναρμολόγησης και μεταφοράς.</p> <p>Χρησιμοποιείτε κατάλληλα εργαλεία και ατομικό εξοπλισμό προστασίας.</p> |
| <p>▲ PERSPĖJIMAS Netinkamas darbas su baterijomis! Susižalojimo pavojus!</p> <p>Nebandykite tuščių baterijų reaktyvuoti arba įkrauti (sprogimo ir išėsdinimo pavojus).</p> <p>Neardykite ir nepažeiskite baterijų. Nemeskite baterijų į ugnį.</p> | <p>▲ ETTEVAATUST Patareide asjatundmatu käsitemine! Vigastusohht!</p> <p>Ärge üritage kunagi tühje patareisid reaktiveerida või täis laadida (plahvatus- ja söövitushoht).</p> <p>Ärge demonteerige ega kahjustage patareisid. Ärge visake patareisid tulle.</p> | <p>▲ ΠΡΟΣΟΧΗ Ακατάλληλος χειρισμός μπαταριών! Κίνδυνος τραυματισμού!</p> <p>Μην επιδιώκετε να ενεργοποιήσετε ξανά ή να φορτίσετε κενές μπαταρίες (κίνδυνος έκρηξης και διάβρωσης).</p> <p>Μην διαλύετε ή καταστρέφετε τις μπαταρίες. Μην απορρίπτετε τις μπαταρίες στη φωτιά.</p> |

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。

中文

▲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 About this documentation

1.1 Validity of the documentation

This instruction has to be complied with by assemblers, operator, service engineers and facility operators. It contains notes about handling the motor components of a kit motor.

Before operating motors or its components, read this operating instruction to ensure a safe and smooth functionality and a long motor lifetime.

1.2 Editions of this documentation







Table 1: Record of revisions

| Edition | Release date | Notes |
|---------|--------------|--|
| 01 | 2013-11 | First edition |
| 02 | 2022-05 | Revision/supplement; new motor types with M9 and S9 encoders added |

1.3 Additional documentation

This operating instruction is only valid with the following Rexroth documentation:

Table 2: Additional documentation

| Title | Document type | Document number |
|---|---|--|
|  MBT High Synchronous Torque Motors | Project Planning Manual | DOK-MOTOR*-MBT*****-PR□□-□□- R911291224 (DE) R911298798 (EN) |
|  MSD151 / MSD201 Synchronous Direct Drive Motor Special product | Project Planning Manual | DOK-MOTOR*-MSDxx1*****-PR□□-□□- R911326526 (DE) R911326527 (EN) |
|  MSD151 / MSD201 Synchronous Direct Drive Motor Special product (encoder M8/S8) | Data sheet | DOK-MOTOR*-MSD151-201*-DA□□-□□- P R911417168 (DE) R911417169 (EN) |
|  MSD130B Synchronous Direct Drive Motor Special product | Data sheet | DOK-MOTOR*-MSD130B****-DA□□-□□- R911417164 (DE) R911417165 (EN) |
|  MSD130C Synchronous Direct Drive Motor Special product | Data sheet | DOK-MOTOR*-MSD130C****-DA□□-□□- R911417166 (DE) R911417167 (EN) |
|  MSD101 / MSD102 / MSD131 Synchronous Direct Drive Motor Special product | Data sheet | DOK-MOTOR*-MSD10X*131F-DA□□-□□- P R911417162 (DE) R911417163 (EN) |
|  Connection cables IndraDrive and IndraDyn | Selection data | DOK-CONNEX-CABLE*INDRV-AU□□-□□- P |
|  Rexroth Connection System, Assembly and Tools | Assembly Instructions | DOK-CONNEX-CAB*INSTR02-MA□□-□□- P |
|  Electromagnetic Compatibility (EMC) Project Planning Drive and Control Systems | Project Planning Manual | DOK-GENERL-EMV*****-PR□□-□□- P |
|  | Documentation about special products are available on demand. | |

1.4 Presentation of information

Safety instructions

The safety notes in this documentation describe signal words (danger, warning, caution, note) and a signal symbol (acc. to ANSI Z535.6-2006).

The signal word is intended to draw your attention to the safety instructions and describes the seriousness of the danger. The warning triangle with exclamation mark indicates the danger for persons.

▲ DANGER

Non-compliance with this safety instructions **will** result in death or severe personal injury.

▲ WARNING

Non-compliance with this safety instructions **can** result in death or severe personal injury.





▲ CAUTION









Non-compliance with this safety instructions can result in moderate or minor personal injury.

NOTICE

Non-compliance with this safety instructions can result in material damage.




Table 3: Symbols

| Symbol | Meaning |
|---|---|
|  | Reference to supplementary documentation |
|  | This note gives important information, which must be observed. |
|  | Single, independent handling step |
| 1. | Numbered instruction: |
| 2. | The numbers show that the action steps must be taken one after the other. |
| 3. | |
|  | Warning against dangerous electric voltage. |

| Symbol | Meaning |
|---|--|
|  | Warning against hot surfaces. |
|  | Warning against rotating machine parts. |
|  | Warning against overhead load. |
|  | Warning against crushing hazard. |
|  | Electrostatic sensitive devices. |
|  | Access for persons with cardiac pacemaker forbidden. |
|  | Do not carry along metal parts or clocks. |
|  | Hammer scales are forbidden. |

Markup

The following markups are used for a user-friendly text information representation:

-  Reference to supplementary documentation
-  This note gives important information, which must be observed.
- Listings on the first level contain a bullet point
 - Listings on the second level contain a dash
-  Handling instructions are specified in numbered lists. Please comply with the order of the handling instructions.

2 Safety instructions

2.1 About this product

Observe the general safety notes in this chapter and the safety instructions in this documentation. Therewith, you avoid personal danger, damage and errors.

† This operating instruction must be stored and transferred in case of sale during the complete product lifetime.

2.2 Important directions on use

2.2.1 Intended use

Introduction

Bosch Rexroth products are designed and manufactured using the latest state-of-the-art-technology. The products are tested prior to delivery to ensure operational safety and reliability.

▲ WARNING

Personal injury and property damage by using products incorrectly!

Failure to use our products in an unintended way may cause situations resulting in property damage and personal injury.

NOTICE

Inappropriate use

Bosch Rexroth, as the manufacturer, does not provide any warranty, assume any liability, or pay any damages for damage caused by products not being used as intended. Any risks resulting from the products not being used as intended are the sole responsibility of the user.

Before using the products by Bosch Rexroth, the following condition precedent must be fulfilled so as to ensure that they are used as intended:

- Personnel that in any way uses our products must first read and understand the relevant safety instructions and be familiar with their appropriate use.
- Hardware products must be left in their original condition, i.e. no structural changes may be made. Software products must not be decompiled and their source code must not be changed.

- Damaged or defective products must not be installed or put into operation.
- It must be ensured that products are installed in compliance with all regulations specified in the documentation.

Prerequisites for proper and safe use of the motors are proper transport, appropriate storage, proper assembly and connection, careful maintenance, operation and overhaul.

Areas of use and application

Typical applications include, for example:

- Handling and mounting systems
- Packaging and food machines
- Printing and paper converting machines
- Machine tools

The motors have been exclusively designed for installation in industrial machinery. The motors have been designed and manufactured in compliance with the EU directives and harmonized standards specified in the following.

Standards

| | |
|--|---------------------------------|
| EN 60034-1 EN 60034-1:2010 + Cor.:2010 | Rating and performance behavior |
| EN 60034-5 EN IEC 60034-5:2020 | Type of protection |

Directives

| | |
|------------|-----------------------|
| 2014/35/EU | Low voltage directive |
|------------|-----------------------|

The machine manufacturer must evaluate the electric and mechanic safety as well as environmental influences in the assembled state of the machine according to the Machine Directive 2014/35/EC EN 60204-1:2018 (Safety of machinery - Electrical equipment of machines -Part 1: General requirements).

The electrical installation must comply with the protection requirements of EMC Directive 2014/30/EU. The plant manufacturer is responsible for appropriate installation (for example:

physical separation of signal and power cables, using shielded cables, ...). The EMC instructions of the converter manufacturer must be observed.

The machine may not be commissioned before conformity with these directives has been confirmed.

For application-specific use of motors, drive controllers with various levels of power, DC bus voltage and different interfaces are available. For regulation and controlling of motors, additional sensors like length measuring systems must be connected.

Before commissioning, every connected drive controller must be programmed according to the specified motor function for the specified application.



- The motors may only be operated under the assembly, mounting and installation conditions, in the normal position, and under the environmental conditions (temperature, degree of protection, humidity, EMC etc.) specified in this documentation.
- The motors may only be used with the accessories and attachments specified in this documentation. Components that are not explicitly specified must not be installed nor connected. The same applies for cables and lines.
- The device may only be operated in the explicitly specified configurations and combination of components and in compliance with the respective functional description of the software and firmware.

2.2.2 Unintended use

Any use of motors outside of the fields of application mentioned above or under operating conditions and technical data other than those specified in this documentation is considered as "non-intended use".

Do not use these motors, if

- the intended application range is not explicitly approved for Bosch Rexroth motors.
- the operating conditions do not comply with the specified ambient conditions. For example, they may not be operated under water, under extreme temperature fluctuations, under extreme maximum temperatures or in potentially explosive atmospheres.

These motors are not suited to be operated directly on the power supply.

Trademark right third parties

Comply with the trademark rights of third parties during assembly and use of single components delivered by Bosch Rexroth. For any infringement of the right, the customer is liable for the accruing damage.

2.3 Qualification of personnel

Any work with or on the described product may only be done by qualified or skilled personnel. For the purpose of this manual, qualified personnel means persons who are familiar with transporting, installing, mounting, commissioning and operating the components of the electrical drive and control system and the associated hazards and have an appropriate qualification for their job.

All persons working on, with or in the vicinity of an electrical system must be informed of the relevant safety requirements, safety guidelines and internal instructions EN 50110-1:2013.

2.4 General safety instructions

Important! Please read all instructions before motor installation.

Do not install or operate motors or components of the electric drive and control system before you have not carefully read all delivered documents.

Please observe the particular applicable national, local and system-specific regulations, the safety instructions in the documentation and the warning and informative labels on the motors.

Improper use of the motors and failure to follow the safety instructions in this document may result in material damage, personal injury, electric shock or, in extreme cases, to death!

In the case of damage due to non-observance of the safety notes, Bosch Rexroth assumes no liability.

Applications for functional safety are only allowed if the motors have the SI-sign on the rating plate.

2.5 Product- and technology-dependent safety instructions

2.5.1 Protection from electric voltage

Work required on the electric system may only be carried out by skilled electricians. Tools for electricians (VDE tools) are absolutely necessary.

Before working:

- Enable.
- Secure against reactivation.
- Ensure de-energization.
- Ground and short-circuit.
- Cover or shield any adjacent live parts.

After completing the job, cancel the measures in reverse order.

Dangerous voltage occurs during operation! Danger to life, risk of injury by electric shock!

- Before start-up, connect the protective conductors on all electric components according to the connection plan.
- Operation, even for short measuring purposes is only allowed with fixed connected protective conductor on the specified points of the components.

2.5.2 Protection from mechanical danger

Dangerous movements! Danger to life, risk of injury, heavy injury or material damage.

- Do not stay within the motion zone of the machine. Avoid unauthorized access into the danger zone.
- Additionally secure vertical axes to prevent them from sinking or descending after having shutdown the motor, for instance as follows:
 - Mechanically lock the vertical axis,
 - providing an external braking / catching / clamping device, or
 - ensure sufficient weight compensation of the axes.

Only using the serially delivered **motor holding brake** or an external holding brake activated by the drive controller **is not suitable for personal protection!**

Rotating parts! Danger to life, risk of injury, heavy injury or material damage.

- Secure key and/or transmission elements against ejection.
- Install covers on dangerous rotating machine parts before start-up.

2.5.3 Protection against magnetic and electromagnetic fields

Magnetic and electromagnetic fields are created in the direct environment of live conductors or permanent magnets of electro motors and are a serious danger for certain persons. The machine operator must sufficiently protect personnel working in these areas from possibly occurring damage by suitable measures (e.g. warning notes, protective clothes, designation of the danger zone).

Electro magnetic and magnetic fields!

Observe the country-specific regulations. For Germany, please observe the specifications of the occupational insurance association BGV B11 and BGR B11 regarding "electromagnetic fields".

Danger for persons with active body aids or passive metallic implants and for pregnant women.

- For persons with active body aids (like heart pacemakers), passive metallic implants (like hip prosthesis) and pregnant women possible hazards exist due to electromagnetic or magnetic fields in direct environment of electric drive and control components and the corresponding live conductors.

Access into these areas can be dangerous for these persons:

- Areas, in which components of electrical drive and control systems and corresponding live conductors are mounted, activated or operated.
- Areas in which motor parts with permanent magnets are stored, repaired or assembled.
- Above mentioned persons must contact their attending physician before entering these areas.
- Please observe the valid industrial safety regulations for plants which are fitted with components of electrical drive and control systems and corresponding live conductors.

Risk of destruction of sensitive parts! Data loss!

- Keep watches, credit cards, check cards and identity cards and all ferromagnetic metal parts, such as iron, nickel and cobalt away from permanent magnets.

Crushing hazard of fingers and hand due to heavy attractive forces of the magnets!

The attractive forces of the permanent magnets influence all magnetizable materials. Especially in an area < 100 mm, the attractive forces

rise. Loose or not fastened components made of magnetizable materials can abruptly and inadvertently attracted with the permanent magnets.

- Extreme caution during handling of motor components with permanent magnets. Do never underestimate strong attractive forces.
- Never work alone.
- Use personal safety equipment (e.g. protective gloves, protective glasses).
- Do not unpack several motor components with permanent magnets or directly place them side by side at your working space.
- Unpack single motor components with permanent magnets immediately prior mounting and mount them immediately.
- Do not bring magnetized or magnetizable materials in the area of permanent magnets. If using magnetizable tools cannot be avoided, hold on the tool very tight, move carefully and observe the attractive force effect of the permanent magnets.

Behavior in the case of accidents with permanent magnets

During work with permanent magnets, the following emergency tools must be ready to use in the case of an accident to release impacted body parts (like fingers, hands, arms a.s.o.):

- Hammer (3-5kg) made of non-magnetized material like brass
- Minimum 2 wedges with approx. 10 - 15 ° lip angles made of non-magnetized material like brass, wood or similar to impact driving into the cutting slit.

In the case of an accident:

- Keep calm!
- If the machine is live, immediately de-energize (emergency button).
- Give first aid or request appropriate help (e.g. emergency doctor).
- Separate inherent parts via emergency tools to loose clamped body parts, like fingers, hand, foot, for example.

- Therefore, beat the wedges with a hammer into the cutting slit to free the caught body parts.

2.5.4 Protection during handling and assembly

Motor components with permanent magnets (e.g. secondary parts of a synchronous linear motor or rotor of a synchronous kit motor) create very strong attractive forces from ferromagnetic parts like further motor components with permanent magnets or parts of iron, nickel or cobalt.

Please observe the safety notes about strong attractive forces of permanent magnets under .

The attractive forces of the permanent magnets influence all magnetizable materials. Especially in an area < 100 mm, the attractive forces rise. Surrounding components can abruptly and inadvertently be attracted by the permanent magnets. Apart from crushing hazard, even the danger of chipping recalcitrant material, causing eye injury, exists.

Use the origin package of the motor components for transport and storage only. The origin package of Rexroth is constructed in such a way that the motor components with the permanent magnets are positioned within the package with suitable distance, providing that the package is correctly used.

Observe the following instructions during unpacking and handling.

- Instruct the personal with regard to the danger.
- Use personal safety equipment (e.g. protective gloves, protective glasses).
- Store all components in its origin package until assembly and for transport.
- Do only work on clean working spaces in which no ferromagnetic parts exist.

- If possible, use non-magnetic tools, e.g. made from aluminum or brass.
- Remove only one motor component from the package and secure it on your working space against slipping, rolling away.

Instruct all participating persons about the dangers and if necessary, expand the preliminary instructions.

Store the original package of the motor components with permanent magnets

Store the original package for later use.

In the case of reuse, ensure a good readability of the safety notes on the package. They must not be paste over!

Risk of injuries due to improper handling! Bodily injury due to crushing, scissors, cutting, punching!

- Observe the instructions on the package.
- Store the motor components with permanent magnets in the original package, only.
- Do not internally store or transport the motor components unpacked.
- Observe the accident prevention regulations.
- Use suitable assembly and transport equipment.
- Prevent clamping and squeezing by means of suitable measures.
- Use suitable tools, if necessary use special tools.
- Properly use lifting devices and tools.
- Use suitable safety equipment (like protective helmets, protective glasses, safety shoes, protective gloves).
- Never walk under hanging loads.
- Immediately remove spill on the ground, otherwise risk of falling!

2.5.5 Protection against burns

Risk of burns due to hot motor surfaces!

- Avoid contact with hot motor surfaces. **Temperatures may rise over 60 °C.**
- Allow the motors to cool down long enough before touching them.
- Temperature-sensitive components may not come into contact with the motor surface. Ensure appropriate mounting distance of connection cables and other components.

2.5.6 Electrostatic sensitive devices (ESD)

The motors contain parts which underlie an electrostatic danger. These components, especially temperature sensors of the motor winding can be destroyed by improper use.

Avoid, e.g. direct contact of open wires or contacts of the connection cable of temperature sensors without being electrostatically discharged or grounded.

ⓘ Remark: Do suitable ESD protective measures before you handle imperiled components (e.g. ESD protective clothes, wristlets, conductive floor, grounded cabinets and working surfaces).

4.1 Technical features

| | |
|---|--|
| Product | Three phase synchronous motor |
| Manufacturer | Bosch Rexroth Electric Drives and Controls GmbH Buergermeister-Dr.-Nebel-Straße 2 97816 Lohr a. Main / Germany |
| Type | MSD130, -131, -151, -201 |
| Listed acc. to UL standard (UL) | UL 1004, Fifth Edition |
| Listed acc. to CSA standard (UL) | Canadian National Standard(s) C22.2 No. 100-04 |
| UL-Files (UL) | E 341734 |
| Ambient temperature during operation | 0 ... 40 °C |
| Motor design | Open (kit motor) |

3 Scope of delivery

The total scope of delivery can be seen from the delivery note or the accompanying document. The content, however, can be delivered in several packages. Each package can be identified by a forwarding label.

The scope of delivery of a rotor contains:

- Motor in original package
- Type plate
- Operating instructions with safety instructions
- Optional connection accessories (only for connection option “terminal box”)

ⓘ After having received the goods, compare the ordered type to the supplied type. Reclaim deviations immediately.

4 About this product

| | |
|------------------------------|--|
| Type of protection | IP00 IP65 (EN 60034-5) |
| Installation altitude | 0 ... 1000 m |
| Sound pressure level | < 75 dB(A) |
| Insulation class | 155 EN 60034-1 |
| Electrical connection | Junction (connector or terminal boxes) |

ⓘ In the case of special design, details named in the operating instructions can deviate. In this case, order the supplementary documentation.

4.1.1 Motor cooling

Liquid cooling

Liquid-cooled motors may only be operated on a closed coolant circuit with heat exchanger. Corrosion inhibitors must be added to the engine cooling water circuit. Observe the information in the project planning manual for MBT motors.

Declarations of conformity certifying the design and the compliance with the valid EN standards and EC guidelines are available for all motors. If required, the declarations of conformity can be requested from the responsible sales office. The CE mark is attached to the motor type label of the motors.

UR/cUR



MSD motors were presented to "Underwriters Laboratories Inc.®" and have been approved by this UL authority. The E-file number E-file number issued is **E335445**. The appropriate identification of the motors is specified on the motor type plate.

RoHS

We confirm in our manufacturer's declaration TC 30806-1 that our products conform with the RoHS directive 2011/65/EG "Restriction of the use of certain hazardous substances in electrical and electronic equipment".

China RoHS 2



The China RoHS 2 conformity can be found on the type plate of the motors.

Information about listing:
 ➔ <https://www.boschrexroth.com.cn/zh/cn/certificates/china-rohs2/>

UKCA certification



MSD motors fulfill the requirements acc. to UKCA. The appropriate identification of the motors is specified on the motor type plate.

5 Transport and storage

5.1 Notes about transport

5.1.1 Environmental conditions

Environmental conditions during transport

Transport our products only in their original package. Also refer to the specific ambient factors to protect the products from transport damage.

Based on EN IEC 60721-3-2:2018, the tables below specify classifications and limit values which are allowed for our products while they are transported by land, sea or air. Refer to the detailed description of the classifications to take all of the factors which are specified in the particular class into account.

Table 4: Allowed classes of environmental conditions during transport according to EN IEC 60721-3-2:2018

| Classification type | Class |
|---|-------|
| climatic environmental conditions | 2K11 |
| environmental conditions | 2B1 |
| classification of chemically active materials | 2C1 |
| classification of mechanically active materials | 2S5 |
| climatic environmental conditions | 2M4 |

For a better overview, some essential environmental influencing variables of the previously mentioned classifications are listed. Unless otherwise specified, the values given are the values of the particular class. However, Bosch Rexroth reserves the right to adjust these values at any time based on future experiences or changed environmental factors.

Table 5: Permissible ambient conditions deviating from EN IEC 60721-3-2:2018

| Environmental factor | Unit | Value |
|-----------------------|------------------|---------------------------|
| Temperature | °C | -25 ... +70 ¹⁾ |
| Relative air humidity | % | 5 ... 75 ¹⁾ |
| Absolute air humidity | g/m ³ | 1 ... 29 ¹⁾ |

1) Deviating from EN IEC 60721-3-2:2018

ⓘ Before transport, discharge the liquid coolant from liquid-cooled motors to avoid frost damage.

5.1.2 Transport to the machine (internal)

NOTICE

Never touch the connection points of electrostatic sensitive devices!

Installed components (e.g., KTY84, encoder) may contain electrostatic sensitive devices (ESD).

Observe ESD safety measures.

▲ WARNING

Risk of injury and material damage due to improper handling during transport!

- ▶ Only use hoisting gear suited for the weight of the motors. Use the eyebolts provided on the housing to lift the stator with housing. Check the tight fit of the eyebolts before each use.
 - ▶ Never walk under hanging loads.
- ▶ Use suitable protective equipment and protective clothing during transport, and wear safety shoes.
- ▶ Remove any existing transport locks prior to commissioning and keep them.

ⓘ Please comply with DIN 580 on the transport of motors using lifting eyebolts. Non-observance of the information in this standard can cause overstress to the lifting eye bolts and result in personal injury and/or product damage.

5.1.3 Transport by air freight

Instructions on transport by air

▲ CAUTION

Possible influence of plane electronic on board through magnet fields!

If motor components are not forwarded in the unopened Rexroth original packaging, applicable packaging and transport regulations must be observed (IATA 953).

This involves, for example:

- Secondary parts of synchronous linear motors
- Rotors of synchronous kit motors
- Rotors of synchronous housing motors (if these are dispatched as motor component, i.e. separate from the stator or motor housing, in service cases)

For details on the maximum allowed magnetic field strengths as well as information on measurement methods for these magnetic field strengths, please refer to the current IATA DGR.

5.2 Storage instructions

Upon delivery, protective sleeves and covers can be attached to Bosch Rexroth motors. They have to remain on the motor for transport and storage. Do not remove these parts until shortly before assembly.

ⓘ MSD131F motors have a transport safety device to protect the motor bearing and the output shaft.

The transport safety device may only be removed immediately before mounting the motor on the machine and must be reattached immediately after motor disassembly.

Please observe the notes about mounting and demounting in the project planning manual.

NOTICE**Damage due to moisture and humidity!**

Before storage, discharge the liquid coolant from dismantled motors to avoid frost damage.

Environmental conditions during storage**⚠ CAUTION****Damage or destruction of motor components due to improperly handling during storage and transport!**

- Use the original packaging for permanent storage.
- Observe the permitted environmental conditions for storage.
- Protective sleeves and covers fitted to the motor at the factory must remain on the motor during transport and storage. Do not remove these parts until shortly before assembly.

Generally, Bosch Rexroth recommends storing all components until they are actually installed in the machine as follows:

- in their original packaging
- at a dry and dustfree location
- at room temperature
- free from vibrations and oscillations
- protected against light or direct sunlight

Based on EN IEC 60721-3-1:2018, the tables below specify classifications and limit values which are allowed for our products while they are stored. Refer to the detailed description of the classifications to take all of the factors which are specified in the particular classification into account.

Table 6: Allowed classes of environmental conditions during storage according to EN IEC 60721-3-1:2018

| Classification type | Class |
|---|-------|
| Classification of climatic environmental conditions | 1K21 |

| Classification type | Class |
|---|-------|
| Classification of biological environmental conditions | 1B1 |
| Classification of chemically active materials | 1C1 |
| Classification of mechanically active materials | 1S10 |
| Classification of mechanical environmental conditions | 1M11 |

For a better overview, some essential environmental influencing variables of the previously mentioned classifications are listed. Unless otherwise specified, the values given are the values of the particular class. However, Bosch Rexroth reserves the right to adjust these values at any time based on future experiences or changed environmental factors.

Table 7: Permissible ambient conditions deviating from EN IEC 60721-3-1:2018

| Environmental factor | Unit | Value |
|-----------------------|------------------|---------------------------|
| Air temperature | °C | -25 ... +55 ¹⁾ |
| Relative air humidity | % | 5 ... 75 ¹⁾ |
| Absolute air humidity | g/m ³ | 1 ... 29 ¹⁾ |

1) Deviating from EN IEC 60721-3-1:2018

Storage times of motors and cables

Additional measures have to be taken upon commissioning to ensure smooth functioning – irrespective of the storage time which may be longer than the warranty period of our products. However, this does not entail any additional warranty claims.

Table 8: Measures before commissioning motors that have been stored over a prolonged period of time

| Storage time | Measures prior to commissioning |
|-----------------|--|
| < 1 year | Visual inspection of all parts to be damage-free |
| 1 ... > 5 years | Visual inspection of all parts to be damage-free |

| Storage time | Measures prior to commissioning |
|--------------|---|
| | <p>Check the electric contacts to verify that they are free from corrosion</p> <p>Measure insulation resistance. Dry the winding at a value of < 1kOhm per volt rated voltage.</p> |

Table 9: Measures before commissioning of cables and connectors that have been stored over longer periods of time

| Storage time | Measures prior to commissioning |
|---------------|--|
| < 1 year | None |
| 1 ... 5 years | <p>Check the electric contacts to verify that they are free from corrosion</p> <p>If the cable or the cable jacket has porous parts, replace it; otherwise check the electric contacts to verify that they are free from corrosion</p> |
| > 5 years | <p>Check the electric contacts to verify that they are free from corrosion</p> |

6 Assembly

6.1 Screw lock

All screwed connections must be secured against potential impacts and vibrations during operation of the machine. A suitable and field-tested screw lock for all metal thread connections is, e.g., Loctite 243.

Loctite 243 is a liquid screw lock (medium-hard) and is applied to the parts to be mounted immediately prior to assembly. For detailed information on correct handling and processing, please refer to the manufacturer's data sheets under www.loctite.de. The manufacturer's homepage also provides information on hardening accelerators or other screw locks.

6.2 Mechanical assembly

▲ CAUTION

Motor damage due to ingress of liquids!

Observe the degree of protection of the motor and the permissible installation position!

Make sure that no liquid can be present on the output shaft. Any fluid on the output shaft can enter the motors and cause damage.

Use all motor mounting holes to mount the motor safely to the machine.

- ▶ If coupling is direct, ensure that the support is plane and the orientation is precise.
- ▶ Avoid pinching or jamming the centering collar on the motor side.
- ▶ Avoid damaging the receptacle fit on the plant side.
- ▶ Use the following screws and washers for flange assembly.

Table 10: Fastening screws for flange mounting of MSD motors

| Motor frame size | Hole \varnothing [mm] | Screw 8.8 | | Tightening torque M_A [Nm] bei $\mu_K = 0.12$ | Washer DIN EN ISO ... |
|------------------|-------------------------|-----------------|-----------------|---|-----------------------|
| | | DIN EN ISO 4762 | DIN EN ISO 4014 | | |
| 101 | 11 | M10 x ... | | 48 | 4014 |
| 102 | | | | | 4762 |
| 130 | 13 | M12 x ... | | 84 | 28738 |
| 131 | 12.5 | M12 x ... | | 84 | 28738 |
| 151 | 18 | M16 x ... | | 206 | 7090 |
| 201 | M16 (20 mm deep) | / | / | / | / |

ⓘ The screwed connections has to be able to take up both the force due to the weight of the motor and the forces acting during operation. The necessary screw length for fastening the motor depends on the machine construction.

6.3 Electrical connection

6.3.1 Power connection

General notes

▲ CAUTION

Motor destruction by direct connection to the 50/60 Hz power grid (three-wire or single-phase power supply)!

The motors described here may be operated only with suitable drive controllers with variable output voltage and frequency (converter mode) as specified by Rexroth.

The power connection of the motors via **flange socket or terminal box** depends on the motor design.

From this junction, the power supply can be realized using a power cable to the controller. Ready-made power cables are available from Rexroth.

Power connection with flange socket Electrical connection "B", "K", "L", "U"

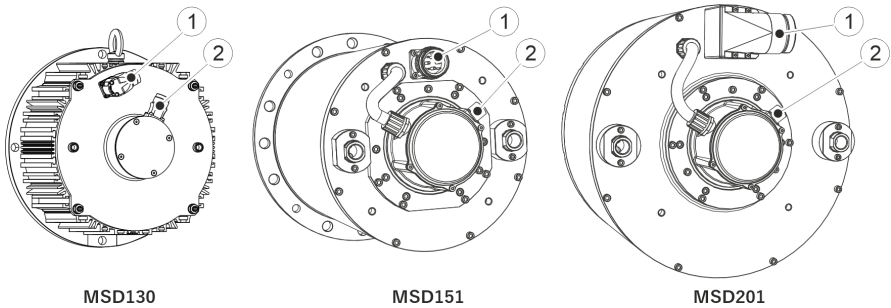


Fig. 3: Motor view onto connector side

- ① Power connection
- ② Encoder connection

Table 11: Motors with flange socket (electrical connection "B", "K", "L", "U", "W")

| Motor design | corresponding documentation see |
|-------------------------|---------------------------------|
| MSD130B-0150-NN-S1-U... | ↪ R911417165 |
| MSD130C-0050-FA-M2-U... | ↪ R911417167 |
| MSD151F-0016-FA-S2-B... | ↪ R911326527 |
| MSD151F-0016-FA-S2-K... | |
| MSD151D-0032-FA-M8-W... | ↪ R911417169 |
| MSD201D-0024-FA-M8-K... | |
| MSD201D-0024-FA-M2-L... | |
| MSD201E-0013-FA-M2-K... | ↪ R911326527 |
| MSD201E-0022-FA-M2-L... | |
| MSD201E-0043-FA-M2-L... | |

Electrical connection "S"

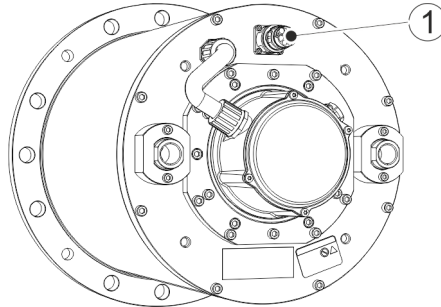


Fig. 4: MSD151D connection (electrical connection "S")

- ① Power and encoder connection

Table 12: Motor with flange socket (electrical connection "S")

| Motor version | corresponding documentation see |
|-------------------------|---------------------------------|
| MSD151D-0012-FA-S9-S... | → R911326527 |

Electrical connection "T"

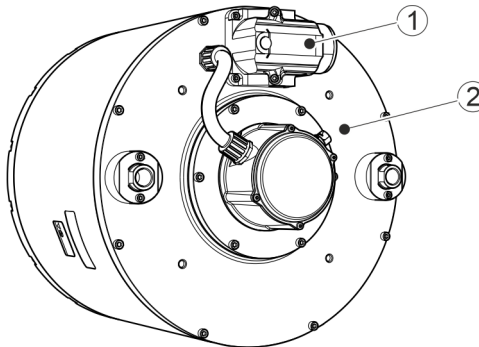


Fig. 5: MSD201E connection (electrical connection "T")

- ① Power connection
② Encoder connection

Table 13: Motors with flange socket (electrical connection "T")

| Motor version | corresponding documentation see |
|-------------------------|---------------------------------|
| MSD201E-0013-FA-M9-T... | |
| MSD201E-0022-FA-M9-T... | → R911326527 |
| MSD201E-0043-FA-M9-T... | |

Power connection via terminal box

Electrical connection "K", "S", "T"

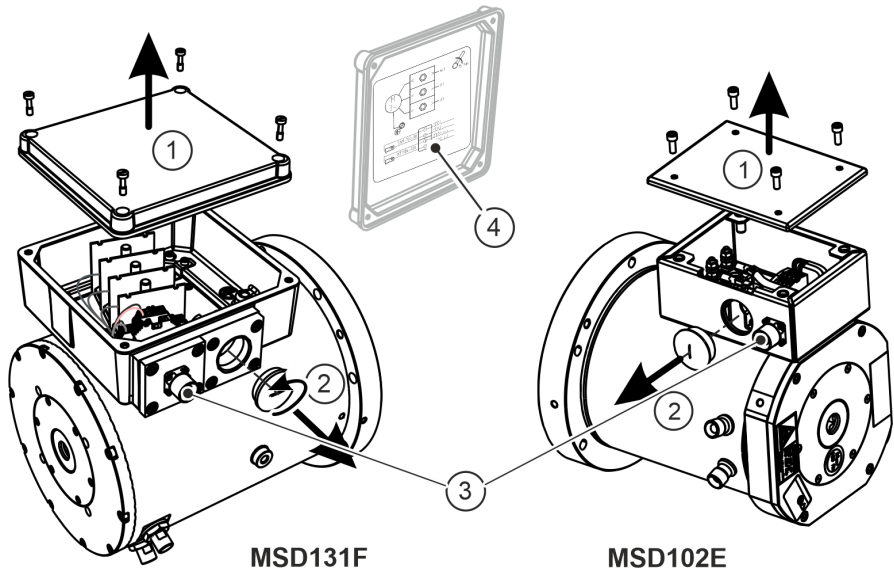


Fig. 6: MSD with terminal box (electrical connection "K", "S", "T")

- ① Terminal box details
- ② Cover of cable gland
- ③ Device connector for encoder connection
- ④ Connection diagram at the inner side of the terminal box lid

Table 14: Motors with terminal box (electrical connection "K", "S", "T")

| Motor version | corresponding documentation see |
|-------------------------|---------------------------------|
| MSD101E-0070-FR-H1-S... | |
| MSD101E-0100-FR-H1-S... | |
| MSD102E-0250-FR-H1-S... | → R911417163 |
| MSD131F-0180-FR-H1-K... | |
| MSD131F-0045-FR-H1-T... | |



- Do not remove or damage the seal glued in the cover of the terminal box.
- Note the size of the cable gland and connection thread for the cable inlet into the terminal box.
- Pay particular attention to the orderly and tension-free routing of the connection cables in the terminal box in order to avoid chafing or pressure points on the cables.
- The connections of the internal motor windings in the terminal box must not be loosened.

Power connection with device connector

Electrical connection "C"

The motor has a 2m long connecting cable with open wire ends. This connecting cable is connected with the motor via a non-dischargeable motor (see).

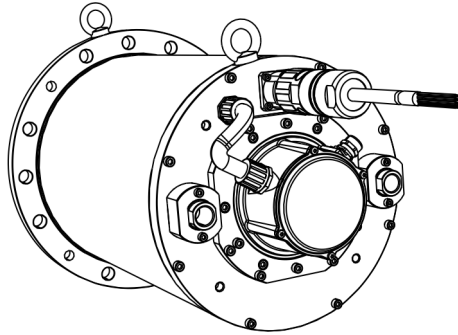


Fig. 7: MSD with connecting cable (electrical connection "C"; figure example MSD151)

Table 15: Motors with connecting cable (electrical connection "C")

| Motor version | corresponding documentation see |
|-------------------------|---------------------------------|
| MSD151F-0016-FA-S2-C... | → R911326527 |
| MSD201E-0022-FA-M2-C... | |

6.3.2 Sensors

Encoder connection

Depending from the motor design, the encoder connection is made via a flange socket B-side on the motor or a flange socket on the terminal box.

When connecting the encoder, please observe the information about the motor in the respective documentation (see → Table 2 "Additional documentation" on page 19).

Connection temperature sensors

Temperature sensors can be mounted within the motors in various combinations. Observe the documentation about the respective motor (→ Table 2 "Additional documentation" on page 19).

Temperature sensor SNM150.DK

▲ CAUTION

Malfunction of device or damage due to unintended use of the sensors!

To ensure safe motor protection from thermal overload, connect the temperature sensor for motor protection (SNM150) to the drive controller. For pin assignments refer to the documentation of the respective motor (→ Table 2 "Additional documentation" on page 19).

Temperature sensor KTY84-130

The KTY84-130 temperature sensor is available for external, indirect temperature measurement with certain motor versions. The power wires of the sensor are led out of the motor and can be further routed from there for further use of the sensor. You will find additional information about

▲ CAUTION**Thermal danger due to hot surfaces with temperatures over 60 °C during operation**

- Do not touch hot motor surfaces.
- Install protection against contact, if necessary.
- Make sure that no temperature-sensitive components (cables, electronic components, ...) touch hot surfaces.

7.2 Environmental conditions during operation

Environmental conditions during operation

Environmental conditions during operation are defined according to EN IEC 60721-3-3:2019 in different classes. They are based on worldwide long-term experiences and take all influencing variables into account, e.g., air temperature and air humidity.

Table 16: Allowed classes of environmental conditions during operation according to EN IEC 60721-3-3:2019

| Classification type | Allowed class |
|---|---------------|
| Classification of climatic environmental conditions | 3K22 |
| Classification of biological environmental conditions | 3B1 |
| Classification of mechanically active materials | 3S6 |
| Classification of mechanical environmental conditions | 3M12 |

Based on EN IEC 60721-3-3:2019, some limit values are partially defined in the following, which our products are allowed to be exposed to during operation. Unless otherwise specified, the values given are the values of the particular class. Observe the detailed description of the classifications to take all of the factors which are specified in the particular class into account.

However, Bosch Rexroth reserves the right to adjust these values at any time based on future experiences or changed environmental factors.

Table 17: Allowed operation conditions

| Environmental factor | Unit | Value |
|-----------------------|------------------|-------------------------------|
| Temperature | °C | 0 ... +40 ¹⁾ |
| Relative air humidity | % | 5 ... 95 ¹⁾ |
| Absolute air humidity | g/m ³ | 1 ... 29 ¹⁾ |
| Installation altitude | m | up to 1,000 m above sea level |

¹⁾ Deviating from EN IEC 60721-3-3:2019

7.3 Commissioning

ⓘ The motor can be operated only after installation into a machine. For start up, please observe the documentation of all system components. For detailed start up procedure of the motors refer to the MBT project planning manual and the respective documentation about drive controller or firmware description.

Prior to commissioning, ensure that the following requirements are met.

- Make sure that the motor cooling as well as the motor are mechanically and electrically connected correctly.
- Ensure that the motor and all participating components of the drive are undamaged and functional (e.g. encoder, cooling, brake, ...).
- Make sure that the axis can rotate freely over the complete rotation range.
- Please observe the general safety instructions on the protection against hazardous movements → Chapter. 2.5.2.

7.4 Operation

During operation, keep the ambient and operation conditions and technical data specified in the project planning manual.

Checks during operation:

- ▶ Pay attention to exceptional noise.
 - ▶ Pay attention to increased vibrations.
 - ▶ Check the motor for cleanliness.
 - ▶ Check the monitoring devices and diagnostic / error messages of the controllers.
- ⓘ Immediately decommission the drive when deviations from normal operation exist.

7.5 Operation with third-party controllers

Rate of rise of voltage

The electrical insulation system of the motor is subject to a higher dielectric load in converter mode than when it is operated with a merely sinusoidal source voltage. The voltage load of the winding insulation in converter mode is mainly defined by the following factors:

- Crest value of voltage
- Rise time of pulses at the motor terminals
- Switching frequency of final converter stage
- Length of power cable to the motor

Main components are the switching times of the final converter stage and the length of the power cable to the motor. The rates of rise of the voltage occurring at the motor may not exceed the pulse voltage limits specified in **DIN VDE 0530-25 (VDE 0530-25): 2009-08 (picture 14, limit curve A)**, measured at the motor terminals of two strands in relation to the rise time.

ⓘ These limits are complied with by the final stages of Rexroth converters.

8 Maintenance

8.1 Cleaning and servicing

▲ WARNING

Operations in the vicinity of live parts are extremely dangerous.

- Work required on the electric system may only be carried out by skilled electricians. Tools for electricians (VDE tools) are absolutely necessary.
 - Isolate (even auxiliary circuits).
 - Secure against reactivation.
 - Ensure de-energization.
 - Ground and short-circuit.
 - Cover or shield any adjacent live parts.

▲ WARNING

Personal and material damage during maintenance work in operation!

- Never carry out maintenance work on running machines. While carrying out maintenance work, secure the machine such that it cannot restart or be used by unauthorized persons.

▲ CAUTION

Hot surfaces with temperatures over 60 °C may cause burns!

- Allow the motors to cool down prior to commencing work. Wear safety gloves. Do not work on hot surfaces.

Motors

Dirt, dust or chips may adversely affect the functionality of the motors and, in extreme cases, even cause a failure of the motors. Therefore, in regular intervals (after one year at the latest), you should clean the surface of the motors in order to achieve a sufficiently large heat radiation surface.

If the cooling fins are partially covered with dirt, sufficient heat dissipation via the ambient air is no longer possible.

Insufficient heat dissipation can have undesirable consequences. The bearing life is reduced by operation at inadmissibly high temperatures (bearing grease decomposes). Overtemperature switch-off despite operation on the basis of selected data, because the appropriate cooling is missing.

Connection cables

⚠ WARNING

Electric shock due to contact with live parts!

- Change damaged connection cables and decommission the plant immediately.
Do not repair any connection lines provisionally.
- Check the connection cable for damage at regular intervals and replace it if necessary.
- Check optionally existing drag chains on defects.
- Check the protective conductor connection at regular intervals for proper condition and tight fit and replace if necessary.

8.2 Service repair, maintenance and spare parts

Increase availability with regular preventive maintenance measures. Observe the machine manufacturer's instructions in the machine maintenance plan and the maintenance measures described below.

The following points should be observed and if necessary restored during the preventive check of motor and auxiliary components:

- Noticeable sound during operation
- State of power and encoder cables in a drag chain.
- Rated current of the motor

Table 18: Maintenance measures

| Measure | Interval |
|---|---|
| Check the cooling system for proper functioning. | According to the specifications in the machine maintenance plan, but at least every 1000 operating hours. |
| Check the mechanical and electrical connections. | According to the specifications in the machine maintenance plan, but at least every 1000 operating hours. |
| Check the machine for smooth running, vibrations and bearing noise. | According to the specifications in the machine maintenance plan, but at least every 1000 operating hours. |
| Remove dust, chips and other dirt in the motor, from the motor housing, cooling fins and the connections. | Depending on the degree of soiling, but after one operating year at the latest. |

🔗 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 drives and controls.

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

Table 19: Service Helpdesk

| | |
|-------------|---|
| Tele-phone: | +49 9352 40 5060 |
| Fax: | +49 9352 18 4941 |
| Email: | ➔ service.svc@boschrexroth.de |
| Internet: | ➔ 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

For quick and efficient help, please have the following information ready:

- Detailed description of the fault and the circumstances
- Information on the rating plate of the products in question, particularly type codes and serial numbers
- Your contact data (phone number, fax number, e-mail address)

9 Disassembly

9.1 General notes about disassembly

▲ DANGER

Fatal injury due to errors during the activation of motors or work on moving elements!

- Work on machines is only allowed if they are secured and while they are not running.
- Before starting disassembly, secure the machine against unforeseeable movements and against unauthorized operation.
- Before dismantling the motor and the supply lines, secure them against dropping or moving and disconnect the mechanical connections only thereafter.

▲ WARNING

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

- Life parts are dangerous.
 - Do not open any covers or flange sockets during operation.
 - Do not connect or disconnect plug-connectors and connection clamps.

ⓘ The machine manufacturer must observe the special features of the construction and create a special disassembly instruction for the motor components. Only this disassembly instruction of the machine manufacturer is binding.

Basic procedure for disassembly:

1. ➤ Use the machine-side control commands to decelerate the drive to a controlled standstill.
2. ➤ Switch off the power and control voltage of the controller.
3. ➤ Switch off the main switch of the machine and deactivate external systems according to the instructions of the manufacturer.

4. ➤ Secure the machine against accidental movements and against unauthorized operation.

5. ➤ Wait until the discharge time of the electrical systems has elapsed and then disconnect all electrical connections. Secure electric cables and contacts against contact with other electrical parts.

6. ➤ Remove dirt, chips and other any kind of residues from the motor.

7. ➤ Before disassembling the motor and the supply lines, secure them against dropping or movements. Subsequently, disconnect the mechanical connections.

8. ➤ Right after disassembly, store or transport the motor components in its origin package.

9. ➤ If necessary, record all measures in the commissioning log or machine maintenance plan.

9.2 Replace the motor

▲ WARNING

Electric shock due to live parts with more than 50 V!

Replacement may only be performed by personnel trained and qualified to work on or with electrical equipment.

ⓘ The motor must be replaced by a motor of identical type. This is the only way to ensure that all parameterizations can remain unchanged. Moreover, repeated acceptance within the scope of the “Integrated safety technology” is not necessary.

1. ➤ If necessary, note the previous absolute value

2. ➤ Open the main switch

3. ➤ Make sure the main switch cannot be switched back on

4. ➔ Disconnection plug connections

ⓘ When exchanging the motor, close open plug sides of power connections with protection caps if moistening with coolant/lubricant or soiling must be expected (allowed soiling degree according to EN 50178: 2).

5. ➔ Replace the motor

ⓘ Observe the machine manufacturer's instructions when exchanging the motor mechanically.

6. ➔ Re-establish the plug connections

7. ➔ Re-establish the dimensional reference

⚠ WARNING

Risk of accidents

due to unintentional movements! If servo axes are provided with an indirect measurement system via the motor encoder, the dimensional reference is lost after motor replacement!

For this reason, the reference to the machine coordinate system must be re-established.

10 Environmental protection and disposal

Disposal of the motor components can be done according to the applicable legal process in normal recycling process.

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

Basic components

Basically, our motors consist of the following components:

- Steel, stainless steel, aluminum, copper, brass
- Plastic parts, insulation and composite material
- Electronic components
- Permanent magnets

Plastic parts of the products may contain flame retardants. These plastic parts are labeled according to EN ISO 1043-1:2011 + A1:2016. They have to be recycled separately or disposed of according to the applicable legal provisions.

Magnets

⚠ WARNING

Danger due to permanent magnets!

- Health hazard for persons with heart pacemakers, metallic implants and hearing aids in direct environment of permanent magnets.
- Crushing hazard of fingers and hand due to heavy attractive forces of the magnets.
- Risk of destruction of sensitive parts like watches, credit cards, ...

ⓘ Remark: The permanent magnets must be demagnetized before disposal to avoid injuries or damage. The demagnetization is reached via thermal treatment. The duration of the treatment depends on the size (guide value: 300 °C, 30 min).

Packaging

Our packaging materials do not contain any problematic materials and can therefore be easily disposed. Packaging materials are: wood, cardboard and polystyrene.

Batteries and accumulators



The symbol indicating "separate collection" for all batteries and accumulators is the crossed-out wheeled bin. End users in the EU are legally bound to return used batteries and accumulators. Outside the scope of the EU Directive 2006/66/EC, the applicable regulations must be followed. Batteries and accumulators can contain hazardous substances which can harm the environment or people's health when improperly stored or disposed of. The batteries or accumulators must be returned to the country-specific collection systems for proper disposal.

Disposal by the manufacturer

Our products can be returned to us for disposal. However, this requires that the products are free from oil, grease or other dirt. The motor components must be returned in a suitable packaging (origin package if possible). In the case of a transport by air freight, please observe the dangerous goods regulations (IATA) for the secondary part.

Send the products to the following address, carriage free:

Bosch Rexroth AG
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr a.Main, Germany

The lengths measuring system and the temperature sensor are monitored by the controller or the control unit; corresponding diagnostic messages are displayed. Observe the instructions in the corresponding documentation.

The sections below describe examples of some fault states along with possible causes. This list is not exhaustive.

11 Troubleshooting

11.1 Procedure

Possible causes for failures of motors can be restricted to the following areas:

- Motor cooling and temperature behavior
- Internal temperature sensor
- Mechanical damage of the motor
- Mechanical connection to machine

Table 20: States of disturbance

| Malfunction | Error cause | Measures |
|---|--|--|
| Motor does not run | Controller enable signal missing | Activate controller enable signal |
| | Controller fault | Troubleshoot acc. to documentation of controller |
| | Voltage supply missing | Control voltage supply |
| Vibrations | Coupling elements or attachments are poorly balanced | Re-balance |
| | Adjustment of shaft end attachments (coupling, gearbox, ...) is insufficient | Re-align the attachments |
| | Mounting screws loose | Lock screw connections acc. to specifications |
| Running noise | Motor damage due to insufficient air gap between primary and secondary part! | Stop the motor --> repair by manufacturer |
| | Guides or motor bearing defective | Stop the motor --> repair by manufacturer |
| High motor temperatures | Operation outside of rated data | Reduce load and check the dimensioning |
| Motor temperature monitoring is activated | Heat dissipation is impaired | Clean the motor |
| | | For liquid cooling, check cooling circuit. |
| Wrong or defective temperature display | Temperature sensor not connected | Connect temperature sensor |
| | Temperature sensor defective | Connect backup temperature sensor (if existing) |
| | | Stop the motor --> repair by manufacturer |

ⓘ In the case of malfunctions or troubleshooting, please observe the notes in the project planning manual, too. Contact the manufacturer, if necessary.

12 Appendix

12.1 Declaration of conformity



EU-Konformitätserklärung - Original

Dok.-Nr.: DCTC-30320-001

Datum: 2018-04-30

- nach Maschinenrichtlinie 2006/42/EG
- nach Niederspannungsrichtlinie 2014/35/EU
- nach EMV-Richtlinie 2014/30/EU
- nach ATEX-Richtlinie 2014/34/EU

Hiermit erklärt der Hersteller:
 Bosch Rexroth AG
 Bürgermeister-Dr.-Nebel-Straße 2
 97816 Lohr am Main / Germany,

dass die nachstehenden Produkte

Bezeichnung: 3-PHASE SYNCHRONOUS MOTOR
 Baureihen: MSD060... MSD101... MSD102... MSD130...
 MSD131... MSD151... MSD201...

Handelsbezeichnung: Rexroth
 ab Herstellungsdatum: 2018-04-30

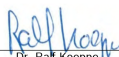
in Übereinstimmung mit den oben genannten EU-Richtlinien entwickelt, konstruiert und gefertigt wurden.
 Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.

Angewandte harmonisierte Normen:


| Norm | Titel | Ausgabe |
|-----------------------------|--|--|
| EN 60034-1 (IEC 60034-1) | Drehende elektrische Maschinen – Teil 1: Bemessung und Betriebsverhalten | 2010 + Cor.:2010 (2010, modifiziert) |
| EN 60034-5 (IEC 60034-5) | Drehende elektrische Maschinen – Teil 5: Schutzarten aufgrund der Gesamtkonstruktion von drehenden elektrischen Maschinen (IP-Code) – Einteilung | 2001 + A1:2007 (2001 + Corrigendum 2001 + A1:2006) |

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DCTC-30320-001_MOE_N_DE_2018-04-30.docx

Lohr a. Main , den 2018-04-30 ppa. 

Ort Datum Dr. Ralf Koeppel
 Chief Technical Officer
 Automatisierungs- und
 Elektrifizierungslösungen

Škofja Loka , den 2018-04-30 i.V. 

Ort Datum Marcus Tenzer
 Werkleitung SkIP/PM

Änderungen im Inhalt der EU-Konformitätserklärung sind vorbehalten. Derzeit gültige Ausgabe auf Anfrage.

Fig. 8: EC declaration of conformity - origin, German

EU declaration of conformity

(Translation of the original EU declaration of conformity)

Doc. No.: DCTC-30320-001

Date: 2018-04-30

- in accordance with Machinery Directive 2006/42/EC
- in accordance with Low Voltage Directive 2014/35/EU
- in accordance with EMC Directive 2014/30/EU
- in accordance with ATEX Directive 2014/34/EU

The Manufacturer:
Bosch Rexroth AG
Bürgermeister-Dr.-Nebel-Straße 2
97816 Lohr am Main / Germany

hereby declares that the products below

Name: 3-PHASE SYNCHRONOUS MOTOR

Series:

| | | | |
|-----------|-----------|-----------|-----------|
| MSD060... | MSD101... | MSD102... | MSD130... |
| MSD131... | MSD151... | MSD201... | |

Trade name: Rexroth
from the date of manufacture: 2018-04-30

were developed, designed and manufactured in compliance with the above-mentioned EU directives.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Harmonized Standards applied:

| Standard | Title | Edition |
|-----------------------------|---|--|
| EN 60034-1 (IEC 60034-1) | Rotating electrical machines - Part 1: Rating and performance | 2010 + Cor.,2010 (2010, modified) |
| EN 60034-5 (IEC 60034-5) | Rotating electrical machines - Part 5: Degrees of protection provided by integral design of rotating electrical machines (IP code) - Classification | 2001 + A1:2007 (2000 + Corrigendum 2001 + A1:2006) |


Place/date/signature as indicated in the original declaration.

We reserve the right to make changes to the content of the EU Declaration of Conformity. Current issue on request.

Page 1 / 1

Fig. 9: EC declaration of conformity - translation

12.2 Technical data

Technical data and operating characteristic curves are described in the respective  project planning manual for all motor types in Tab. 2.

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