

Rexroth MBS Synchronous Kit Spindle Motor

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Edition 01

Instructions

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Purpose of Documentation	This documentation ... <ul style="list-style-type: none"> • briefs mounting, operating and maintenance personnel, • contains basic instructions on the assembly, operation and maintenance of the stators. 							
Record of Revision	<table border="1"> <thead> <tr> <th>Edition</th> <th>Release Date</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>DOK-MOTOR*-MBSxx0*****-IT01-EN-P</td> <td>10/2012</td> <td>1. Edition</td> </tr> </tbody> </table>		Edition	Release Date	Notes	DOK-MOTOR*-MBSxx0*****-IT01-EN-P	10/2012	1. Edition
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<p>D Deutsch</p>	<p>USA English</p>	<p>F Français</p>
<p>▲WARNING 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>▲WARNING 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>▲WARNING Gefahrbringende 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>
<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>

D Deutsch	USA English	F Français
<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>




E Español	P Português	I Italiano
<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 acionamento apenas com condutores de proteção instalados.</p> <p>Desligue a alimentação de tensão antes de aceder aos componentes de acionamento.</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 acionamentos 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>




E Español	P Português	I Italiano
<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 acionamento 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>
<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 acionamento (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>

S Svenska	DK Dansk	NL Nederlands
<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>
<p>⚠ VARNING Hög elektrisk spänning! Livsfara genom elchock!</p> <p>Använd endast drivkomponenterna med fastmonterad 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 ontlaadtijden van condensatoren in acht.</p>

S Svenska	DK Dansk	NL Nederlands
<p>⚠ VARNING Farliga rörelser! Livsfaral</p> <p>Uppehåll dig inte inom maskiners och maskindelarars 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 maskindeles 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>Voorkom 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! Hälsofara 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 metallytor (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>Voorkom contact met metalen oppervlakken (bijv. Koellichamen). Afkoeltijd van de aandrijvingscomponenten in acht nemen (min. 15 minuten).</p>
<p>⚠ OBSERVERA Felaktig 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>
<p>⚠ OBSERVERA Felaktig hantering av batterier! Skaderisk!</p> <p>Försök inte återaktivera eller ladda upp batterier (risk för explosioner och frätskador).</p> <p>Batterierna får inte tas isär eller skadas. Släng inte batterierna i elden.</p>	<p>⚠ FORSIGTIG Fejlhåndtering af batterier! Risiko for kvæstelser!</p> <p>Forsøg ikke at genaktivere eller oplade tomme batterier (eksplosions- og ætsningsfare).</p> <p>Undlad at skille batterier ad eller at beskadige dem. Smid ikke batterier ind i åben ild.</p>	<p>⚠ VOORZICHTIG Onjuist gebruik van batterijen! Letselgevaar!</p> <p>Probeer nooit lege batterijen te reactiveren of op te laden (explosiegevaar en gevaar voor beschadiging van weefsel door cauterisatie).</p> <p>Batterijen niet demonteren of beschadigen. Nooit batterijen in het vuur werpen.</p>

<p>FIN Suomi</p>	<p>PL Polski</p>	<p>CZ Český</p>
<p>VAROITUS Näiden turvaohjeiden noudattamatta jättämisestä on seurauksena hengenvaara!</p> <p>Ota tuote käyttöön vasta sen jälkeen, kun olet lukenut läpi tuotteen mukana toimitetut asiakirjat ja turvallisuusohjeet, ymmärtänyt ne ja ottanut ne huomioon.</p> <p>Jos asiakirjoja ei ole saatavana omalla äidinkielelläsi, ota yhteys asianomaiseen Rexrothin myyntiedustajaan.</p> <p>Käyttölaitteiden komponenttien parissa saa työskennellä ainoastaan valtuutettu henkilöstö.</p> <p>Lisätietoja turvaohjeista löydät tämän dokumentaation luvusta 1.</p>	<p>OSTRZEŻENIE Zagrożenie życia w razie nieprzestrzegania poniższych wskazówek bezpieczeństwa!</p> <p>Nie uruchamiać produktów przed uprzednim przeczytaniem i pełnym zrozumieniem wszystkich dokumentów dostarczonych wraz z produktem oraz wskazówek bezpieczeństwa. Należy przestrzegać wszystkich zawartych tam zaleceń.</p> <p>W przypadku braku dokumentów w Państwa języku, prosimy o skontaktowanie się z lokalnym partnerem handlowym Rexroth.</p> <p>Przy zespołach napędowych może pracować wyłącznie wykwalifikowany personel.</p> <p>Blizsze objaśnienia wskazówek bezpieczeństwa znajdują się w Rozdziale 1 niniejszej dokumentacji.</p>	<p>VAROVÁNÍ Nebezpečí života v případě nedodržení níže uvedených bezpečnostních pokynů!</p> <p>Před uvedením výrobků do provozu si přečtěte kompletní dokumentaci a bezpečnostní pokyny dodávané s výrobkem, pochopte je a dodržujte.</p> <p>Nemáte-li k dispozici podklady ve svém jazyce, obraťte se na příslušného obchodního partnera Rexroth.</p> <p>Na komponentách pohonu smí pracovat pouze kvalifikovaný personál.</p> <p>Podrobnější vysvětlení k bezpečnostním pokynům naleznete v kapitole 1 této dokumentace.</p>
<p>VAROITUS Voimakas sähköjännite! Sähköiskun aiheuttama hengenvaara!</p> <p>Käytä käyttölaitteen komponentteja ainoastaan maadoitusjohtimen ollessa kiinteästi asennettuna.</p> <p>Katkaise jännitteensyöttö ennen käyttölaitteen komponenteille suoritettavien töiden aloittamista.</p> <p>Huomioi kondensaattoreiden purkausajat.</p>	<p>OSTRZEŻENIE Wysokie napięcie elektryczne! Zagrożenie życia w wyniku porażenia prądem!</p> <p>Zespoły napędu mogą być eksploatowane wyłącznie z zainstalowanym na stałe przewodem ochronnym.</p> <p>Przed uzyskaniem dostępu do podzespołów napędu należy odłączyć zasilanie elektryczne.</p> <p>Zwracać uwagę na czas rozładowania kondensatorów.</p>	<p>VAROVÁNÍ Vysoké elektrické napětí! Nebezpečí života při zasažení elektrickým proudem!</p> <p>Komponenty pohonu smí být v provozu pouze s pevně nainstalovaným ochranným vodičem.</p> <p>Než začnete zasahovat do komponent pohonu, odpojte je od elektrického napájení.</p> <p>Dodržujte vybíjecí časy kondenzátorů.</p>
<p>VAROITUS Vaarallisia liikkeitä! Hengenvaara!</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 pohonu.</p>
<p>VAROITUS Sähkömagneettisia/ magneettisia kenttiä! Terveystieteellisten haittojen vaara henkilöille, joilla on sydämentahdistin, metallinen implantti tai kuulolaite!</p> <p>Yllä mainituilta henkilöiltä on pääsy kielletty alueelle, joilla asennetaan tai käytetään käyttölaitteen komponentteja, tai heidän on ensin saatava 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 jäähtymisaikoja (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 komponent pohonu (min. 15 minut).</p>

 Suomi	 Polski	 Český
<p>▲ HUOMIO Epäasianmukainen käsittely kuljetuksen ja asennuksen yhteydessä! Loukkaantumisaara!</p> <p>Käytä soveltuvia asennus- ja kuljetuslaitteita.</p> <p>Käytä omia työkaluja ja henkilökohtaisia suojavarusteita.</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! Loukkaantumisaara!</p> <p>Älä yritä saada tyhjiä paristoja toimimaan tai ladata niitä uudelleen (räjähdys- ja syöpymisaara).</p> <p>Älä hajota paristoja osiin tai vaurioita niitä. Älä heitä paristoja tullen.</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
<p>▲ OPOZORILO Življenjska 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 Nebezpečnostvo ohrotenia života pri nedodržiavaní 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>Bližšie vysvetlenia k bezpečnostným pokynom zistíte z kapitoly 1 tejto dokumentácie.</p>	<p>▲ AVERTIZARE Pericol de moarte în cazul nerespectării 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! Življenjska 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! Nebezpečnostvo ohrotenia 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 premiki! Življenjska 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 nebezpečnostvo! Nebezpečnostvo ohrotenia života!</p> <p>Nezdržiaвайте sa v oblasti pohybu strojov a častí strojov.</p> <p>Zabráňte nepovolanému prístupu osôb.</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>SLO Slovensko</p>	<p>SK Slovenčina</p>	<p>RO Română</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! Nebezpečenstvo pre zdravie osôb s kardioštimulátormi, 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>Intrarea în zone, în care se montează sau se exploatează componente de acționare, este interzisă pentru persoanele sus numite respectiv este permisă numai cu acordul medicului.</p>
<p>⚠ POZOR Vroče površine (> 60 °C)! Nevarnost opeklin!</p> <p>Izogibajte se stiku s kovinskimi površinami (npr. hladilnimi telesii). Upoštevajte čas hlajenja pogonskih komponent (najm. 15 minut).</p>	<p>⚠ UPOZORNENIE Horúce povrchy (> 60 °C)! Nebezpečenstvo 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 nameštivju! 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! Nebezpečenstvo 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 eksplozije ali jedkanja).</p> <p>Ne razstavljajte ali poškodujte nobenih baterij. Baterij ne mečite v ogenj.</p>	<p>⚠ UPOZORNENIE Neodborná manipulácia s batériami! Nebezpečenstvo poranenia!</p> <p>Nepokúšajte sa reaktivovať alebo nabíjať prázdne batérie (nebezpečenstvo výbuchu a poleptania).</p> <p>Batérie nerozoberajte ani nepoškodzuje. 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>

<p>H Magyar</p>	<p>BG Български</p>	<p>LV Latviski</p>
<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 nyelvén 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 подолу 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 Turpinājuma doto drošības norādījumu neievērošana var apdraudēt dzīvību!</p> <p>Sāciet lietot izstrādājumu tikai pēc tam, kad esat pilnībā izlasījuši, sapratuši un nēmuši 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>
<p>⚠ FIGYELMEZTETÉS! Magas elektromos feszültség! Életveszély 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>

H Magyar	BG Български	LV Latviski
<p>▲ FIGYELMEZTETÉS! Veszélyes mozgás! Életveszély!</p> <p>Ne tartózkodjon a gépek és a gépkatrészek 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, fémbelüktetéssel 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 монтира 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>▲ VIGYÁZAT! Forró felületek (> 60 °C)! Égésveszély!</p> <p>Ne érjen hozzá fémfelületekhez (pl. hűtőtetekhez)! 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>Neskarīties pie metāliskām virsmām (piemēram, dzesētāja). Ļaujiet piedziņas komponentiem atdzist (min. 15 minūtes).</p>
<p>▲ VIGYÁZAT! Szakszerűtlen kezelés szállításkor 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>
<p>▲ VIGYÁZAT! Akkumulátorok szakszerűtlen kezelése! Sérülésveszély!</p> <p>Üres akkumulátorokat ne aktiváljon újra, illetve ne töltsön fel (robbanás- és marásveszély)!</p> <p>Az akkumulátorokat ne szedje szét, és ne rongálja meg! Az akkumulátort ne dobja tűzbe!</p>	<p>▲ ВНИМАНИЕ Неправилно боравене с батерии! Опасност от нараняване!</p> <p>Не се опитвайте да активирате отново или да зареждате разредени батерии (Опасност от експлозия и напръскване с агресивен агент).</p> <p>Не разглобявайте и не повреждайте батерии. Не хвърляйте батерии в огън.</p>	<p>▲ UZMANĪBU Nepareiza bateriju lietošana! Traumu gūšanas risks!</p> <p>Nemēģiniet no jauna aktivizēt vai uzlādēt tukšas baterijas (eksploziju un ķīmisko apdegumu draudi).</p> <p>Neizjauciet un nesabojājat baterijas. Nemetiet baterijas ugunī.</p>

<p>LT Lietuviškai</p>	<p>EST Eesti</p>	<p>GR Ελληνικά</p>
<p>⚠️ ISPĖJIMAS Pavojus gyvybei nesilaikant toliau pateikiamų saugumo nurodymų!</p> <p>Naudokite gaminį tik kruopščiai perskaitę prie jo pridėtus aprašus, saugumo nurodymus. Susipažinkite su jais ir vadovaukitės naudodami gaminį.</p> <p>Jei Jūs negavote aprašo gimtąja kalba, kreipkitės į igaliotus Rexroth atstovus.</p> <p>Prie pavaros komponentų leidžiama dirbti tik kvalifikuotam personalui.</p> <p>Išsamesnius saugumo nurodymų paaiškinimus rasite šios dokumentacijos 1 skyriuje.</p>	<p>⚠️ HOIATUS Alljärgnevatate ohutusjuhiste eiramine on eluohtlik!</p> <p>Võtke tooted käiku alles siis, kui olete toodetega kaasasolevad materjalid ning ohutusjuhised täielikult läbi lugenud, neist aru saanud ja neid järginud.</p> <p>Kui Teil puuduvad emakeelsed materjalid, siis pöörduge Rexrothi kohaliku müügiesinduse poole.</p> <p>Ajamikomponentidega tohib töötada üksnes kvalifitseeritud personal.</p> <p>Täpsemaid selgitusi ohutusjuhiste kohta leiate käesoleva dokumentatsiooni peatükist 1.</p>	<p>⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Κίνδυνος θανάτου σε περίπτωση μη συμμόρφωσης με τις παρακάτω οδηγίες ασφαλείας!</p> <p>Θέστε το προϊόν σε λειτουργία αφού διαβάσετε, κατανοήσετε και λάβετε υπόψη το σύνολο των οδηγιών ασφαλείας που το συνοδεύουν.</p> <p>Εάν δεν υπάρχει τεκμηρίωση στη γλώσσα σας, απευθυνθείτε σε εξουσιοδοτημένο αντιπρόσωπο της Rexroth.</p> <p>Μόνο εξειδικευμένο προσωπικό επιτρέπεται να χειρίζεται στοιχεία μετάδοσης κίνησης.</p> <p>Περαιτέρω επεξηγήσεις των οδηγιών ασφαλείας διατίθενται στο κεφάλαιο 1 της παρούσας τεκμηρίωσης.</p>
<p>⚠️ ISPĖJIMAS Aukšta elektros įtampa! Pavojus gyvybei dėl elektros smūgio!</p> <p>Pavaros komponentus eksploatuokite tik su fiksuotai instaliuotu apsauginiu laidu.</p> <p>Prieš priedami prie pavaros komponentų išjunkite maitinimo įtampą.</p> <p>Atsižvelkite į kondensatorių išsikrovimo trukmę.</p>	<p>⚠️ HOIATUS Kõrge elektripinge! Eluohtlik elektrilöögi tõttu!</p> <p>Käitage ajamikomponente üksnes püsival installaeritud maandusega.</p> <p>Lülitage enne ajamikomponentidega tööde alustamist toitepinge välja.</p> <p>Järgige kondensaatorite mahalaadumisaegu.</p>	<p>⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Υψηλή ηλεκτρική τάση! Κίνδυνος θανάτου από ηλεκτροπληξία!</p> <p>Θέτετε σε λειτουργία τα στοιχεία μετάδοσης κίνησης μόνο εφόσον έχει τοποθετηθεί καλά προστατευτικός αγωγός γείωσης.</p> <p>Πριν από οποιαδήποτε παρέμβαση, αποσυνδέστε την τροφοδοσία των στοιχείων μετάδοσης κίνησης.</p> <p>Λάβετε υπόψη τους χρόνους αποφόρτισης των πυκνωτών.</p>
<p>⚠️ ISPĖJIMAS Pavojingi judesiai! Pavojus gyvybei!</p> <p>Nebūkite mašinų ar jų dalių judėjimo zonoje. Neleiskite netyčia patekti asmenims.</p> <p>Prieš patekdami į pavojaus zoną saugiai išjunkite pavaras.</p>	<p>⚠️ HOIATUS Ohtlikud liikumised! Eluohtlik!</p> <p>Ärge viibige masina ja masinaosade liikumispiirkonnas.</p> <p>Tõkestage inimeste ettekavatsematu sisenemine masina ja masinaosade liikumispiirkonda.</p> <p>Tagage ajamite turvaline seiskamine enne ohupiirkonda juurdepääsu või sisenemist.</p>	<p>⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ Επικίνδυνες τάσεις! Κίνδυνος θανάτου!</p> <p>Μην στέκεστε στην περιοχή κίνησης μηχανημάτων και εξαρτημάτων.</p> <p>Αποτρέψτε την τυχαία είσοδο ατόμων.</p> <p>Πριν από την παρέμβαση ή πρόσβαση στην περιοχή κινδύνου, μεριμνήστε για την ασφαλή ακινητοποίηση των συστημάτων μετάδοσης κίνησης.</p>
<p>⚠️ ISPĖJIMAS 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 väljad! Terviseohtlik südamestimulaatorite, metallimplantaatide ja kuulmisseadmetega inimestele!</p> <p>Sisenemine piirkondadesse, kus toimub ajamikomponentide 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)! Põletusoh!</p> <p>Vältige metalsete välispindade (nt radiaatorid) puudutamist. Pidage kinni ajamikomponentide mahajahtumisaajast (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>

LT Lietuviškai	EST Eesti	GR Ελληνικά
<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>▲ ETTEVAATUSTI Asjatundmatu käsitsemine transportimisel ja montaažil! Vigastusoht!</p> <p>Kasutage sobivaid montaaži- ja transportiseadiseid.</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 reaktivuoti arba įkrauti (sprogimo ir išėdinimo pavojus).</p> <p>Neardykite ir nepažeiskite baterijų.</p> <p>Nemeskite baterijų į ugnį.</p>	<p>▲ ETTEVAATUSTI Patareide asjatundmatu käsitsemine! Vigastusoht!</p> <p>Ärge üritage kunagi tühje patareisid reaktiveerida või täis laadida (plahvatus- ja söövitusoht).</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>

CN 中文
<p>▲ 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！</p> <p>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。</p> <p>如果没有您所在国家官方语言文件说明，请与 Rexroth 销售伙伴联系。</p> <p>只允许有资格人员对驱动器部件进行操作。</p> <p>安全说明的详细解释在本文档的第一章。</p>
<p>▲ 警告 高压！电击导致生命危险！</p> <p>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。</p> <p>在接触驱动器部件前先将驱动器部件断电。</p> <p>确保电容放电时间。</p>
<p>▲ 警告 危险运动！生命危险！</p> <p>保证设备的运动区域内和移动部件周围无障碍物。</p> <p>防止人员意外进入设备运动区域内。</p> <p>在接近或进入危险区域之前，确保传动设备安全停止。</p>
<p>▲ 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！</p> <p>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。</p>
<p>▲ 小心 热表面（大于 60 度）！灼伤风险！</p> <p>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）。</p>
<p>▲ 小心 安装和运输不当导致受伤危险！当心受伤！</p> <p>使用适当的运输和安装设备。</p> <p>使用适合的工具及用适当的防护设备。</p>
<p>▲ 小心 电池操作不当！受伤风险！</p> <p>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）。</p> <p>请勿拆解或损坏电池。请勿将电池投入明火中。</p>

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1 About this Documentation

1.1 Validity of this Documentation

This operating manual is directed at fitters, operators, service engineers and system operators and contains basic information on the handling of the rotor and stator motor components of an IndraDyn H kit motor from delivery to dismantling and disposal.

Read this instruction before using a motor, to reach a danger free and smooth function and a long operating life of the motor.

1.2 Additional documentation

This instruction is only valid in connection with the following documentation of Rexroth:





	Title	Document type	Document number
	Rexroth MBS Synchronous Kit Spindle Motor	Project Planning Manual	DOK-MOTOR*-MBS*****-PR□□-□□-P
	Rexroth Connection Cables IndraDrive und IndraDyn	Selection data	DOK-CONNec-CABLE*INDRV-AU□□-□□-P
	Rexroth Connecting Technology, Finishing and Tools...	Mounting Instructions	DOK-CONNec-CAB*INSTR02-MA□□-□□-P
	Electromagnetic compatibility (EC) for drive and control systems	Project Planning Manual	DOK-GENERL-EMV*****-PR□□-□□-P

Fig. 1-1: Additional documentation

1.3 Presentation of Information

Safety Instructions The safety instructions in these operating instructions include 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.

About this Documentation

NOTICE

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

Symbols









Symbol	Meaning
	Reference to supplementary documentation
	This note gives important information, which must be observed.
	Single, independent action step.
1. 2. 3.	Numbered action instructions: The numbers show that the action steps must be taken one after the other.
	Warning against dangerous electric voltage.
	Warning against hot surfaces.
	Warning against rotating machine parts.
	Warning against overhead load.
	Electrostatic sensitive devices.
	Prohibition for persons with cardiac pacemaker.
	Do not carry along metal parts or clocks.
	Hammer scales are forbidden.
	The UL Recognized Component Mark shows recognized component parts which are components of a bigger product or system.
	The letters C and E stand for "Conformité Européenne". The CE mark only shows that a product conforms with the respective EC guidelines. Conformity with the Low Voltage Directive 73/23/EEC (Appendix III B), DIN EN 60034-1, DIN EN 60034-5 is confirmed for MBS motors.
	Component prepared for use in systems for "integrated safety technology".

Fig. 1-2: Meaning of symbols

2 Safety Instructions

2.1 About this Chapter

Please observe the general safety instructions in this chapter and the safety-related guidelines and handling instructions in this manual. This will prevent personal hazards, material damage and errors.



This manual must be stored by the user during the whole product lifetime and passed on when selling.

2.2 Appropriate Use



Handle the motor components carefully in each situation. Please especially observe the safety notes and notes about strong permanent magnets on the secondary part.

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

The motors have been designed for installation in industrial machinery. The motors comply with the following standards and directives.

Standards

DIN EN 60034-1	Rating and performance
DIN EN 60034-5	Degree of protection

Directives

73/23/EEC (Appendix III B)	EC 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 2006/42/EC and DIN EN 60204-1 (Safety of Machines).

The electric installation must comply with the protection requirements of the EMC Directive 2004/108/EC. The proper installation of the system (for instance physical separation of signal and power cables, use of shielded cables ...) is the responsibility of the plant manufacturer. The converter manufacturer's EMC instructions must be observed.

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

Safety Instructions

2.3 Non-Intended Use

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

Direct operation on the three-phase network and use in hazardous areas (ATEX) are forbidden.

Property right of third party

The property rights of third parties have to be observed by the customer when assembling and using individual components of Bosch Rexroth. In the case of infringement, the customer itself is held liable for the resulting damage.

2.4 Personnel Qualification

For the purpose of this manual, 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 (DIN EN 50110-1).

2.5 General Safety Instructions

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

Please observe the particular applicable national, local and system-specific regulations, the 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!

For damage due to non-compliance with the safety instructions, Bosch Rexroth does not assume any liability.

2.6 Product and Technology-dependent Safety Instructions

2.6.1 Protection against Electrical Voltage

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

Prior to commencing the work:

1. Isolate.
2. Protect the system or plant against restart.
3. Ensure de-energization.
4. Ground and short-circuit.
5. Cover or shield any adjacent live parts.

After completion of the work, unmake the measures in reverse order.

During operation, dangerous voltages occur! Danger! Risk of injury due to electric shock!

- Before switching on, establish the fixed connection of the protective conductor to all electric components according to the interconnection diagram.
- Operation, even for short-term measuring and testing purposes, is only permitted with the protective conductor securely connected to the component points provided.

2.6.2 Protection against Mechanical Hazards

Dangerous movements! Danger to life, risk of injury, severe personal injury or material damage!

- Do not stay within the area of motion of the machine. Prevent persons from accidentally entering the danger zone.
- Make vertical axes safe against falling or declining after switching off the motor, e.g., by
 - locking the vertical axis mechanically,
 - providing an external braking / catching / clamping device, or
 - ensuring sufficient equilibration of the vertical axis.

Rotating parts! Danger to life, risk of injury, severe personal injury or material damage!

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

2.6.3 Protection against Magnetic and Electromagnetic Fields

Magnetic and electromagnetic fields are created in the direct environment of live conductors or permanent magnets of electric motors and can be a great danger for persons. The machine operator must sufficiently protect the personal working in these areas from potential occurring damage due to suitable measures (e.g. warning notes, protective clothes, designation of the danger zone).

Please note the valid country-specific regulations. Regarding "electromagnetic fields" observe the guidelines of the occupational insurance association in the BGV B11 and BGR B11 in Germany.

Strong magnetic and electromagnetic fields pose a health hazard for persons with heart pacemakers, metallic implants and hearing aids in the direct environment of motor components!

- Persons with heart pacemakers and metallic implants are not allowed to approach or handle these motor components.

Risk of destruction of sensitive parts!

- Keep watches, credit cards, check cards and identity cards with magnetic strips as well as all ferromagnetic metallic parts such as iron, nickel and cobalt away from the permanent magnets.

Crushing hazard of fingers and hands due to strong attractive forces of the magnets!

- Handle the rotor carefully, using safety gloves if necessary.

Behavior at accidents with permanent magnets

In the case of an accident, you must keep the following emergency tools ready for all work with permanent magnets to relieve from clamped bodily parts (e.g. fingers, hand, arm, etc.):

- hammer (3-5 kg) made from non-magnetic materials, e.g. brass

Safety Instructions

- the min. 2 wedges with ca. 10 - 15 % wedge angle made from non-magnetic materials, e.g. brass, hardwood, etc. to drive into the cutting slit

In the case of an accident:

- Keep cool!
- If the machine is under load, de-energize immediately (EMERGENCY STOP switch).
- Separate inherent parts via emergency tools to loose clamped body parts.
- Give first aid or ask for appropriate help.

2.6.4 Protection against Burns

Risk of burns by hot surfaces!

- Avoid contact with hot motor surfaces. **Temperatures may rise to over 70 °C.**
- Allow the motor components 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.

2.6.5 Electrostatic sensitive devices (ESD)

Rexroth 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 of the connection cable of temperature sensors without being electrostatically discharged or grounded.



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

3 Scope of Delivery

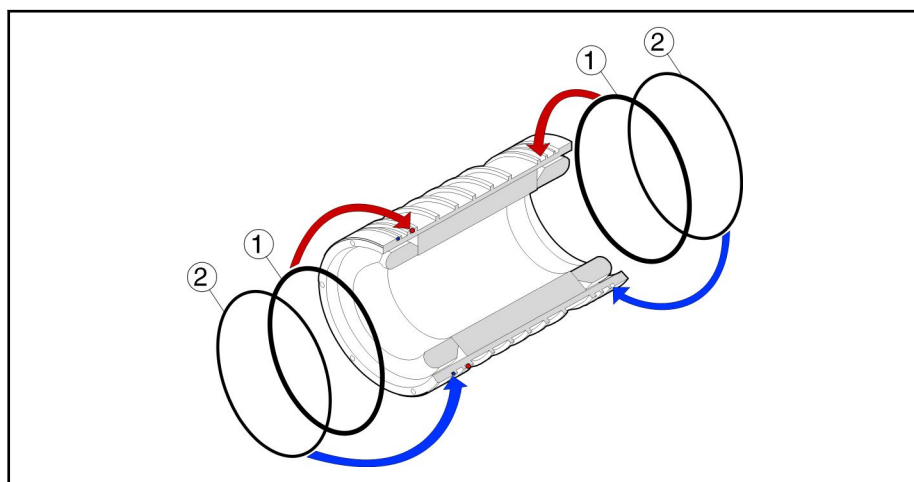
The total scope of a delivery is specified on the delivery or consignment note. However, the contents may be distributed over several packages. Each individual package can be identified using the shipment label attached to the outside.

Scope of delivery of a MSS stator

The scope of delivery of a stator includes:

- Stator in its original packaging
- Rating Plate
- Safety Instructions
- O-ring

O-rings can be re-ordered if they are damaged, for example, during stator assembly.



- ① O-ring sealing coolant jacket
- ② O-ring sealing leakage groove

Fig.3-1:

Scope of delivery of MRS rotor

The scope of delivery of a rotor includes:

- Rotor in its original packaging
- Rating Plate
- Grub screw for rotor balancing (size and number depending from rotor)
- Safety Instructions



On delivery, immediately verify whether the delivered goods are those specified on the delivery note. The forwarder must be promptly informed of any damage on the packaging and goods, which is detected on delivery.

4 About this Product

4.1 Product description

4.1.1 Technical Features

Product	Three-phase synchronous motor
Manufacturer	Bosch Rexroth Electric Drives and Controls GmbH Buergermeister-Dr.-Nebel-Strasse 2 97816 Lohr am Main / Germany
Type	MSS -160, -200, -201, -203 MRS -160, -200, -201, -203
Listing acc. to UL standard (UL)	UL 1004, Fifth Edition
Listing acc. to CSA standard (UL)	Canadian National Standard(s) C22.2 No. 100-04
UL Files (UL)	E 341734
Ambient temperature in operation	0 ... 40 °C
Motor design	open (kit motor)
Degree of protection (DIN EN 60034-5)	IP00
Installation altitude	0 ... 1,000 m
Sound pressure level	< 75 dB(A)
Insulation class (DIN EN 60034-1)	155
Electrical connection	Connection cable



Special versions may deviate from the details specified in these operating instructions. In this case, the related supplementary documentation must be requested.

4.2 Product Identification

4.2.1 Designation on Rotor and Stator

Rotor and stator are designated with a type designation, serial number and manufacturing date. The designation is on the frontal side of the motor components.

About this Product

4.2.2 Type Code MSS160, 200, 201, 203

Product	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	M S S = MBS kit motor stator
Motor Frame Size	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	= see project planning manual Rexroth MBS
Motor Frame Length	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	= see project planning manual Rexroth MBS
Winding Designations	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	= see project planning manual Rexroth MBS
Stator Design	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	A = aluminum cooling jacket for liquid coolant
	B = aluminum cooling jacket for natural convection
Electrical Connection	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	1 = cable 1.5 m lead out on stator side with bigger outer diameter
Motor Encoder	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	N = without motor encoder
Other Design	MSS _ _ _ _ - _ _ _ - _ _ _ - _ _ _
	NN = none

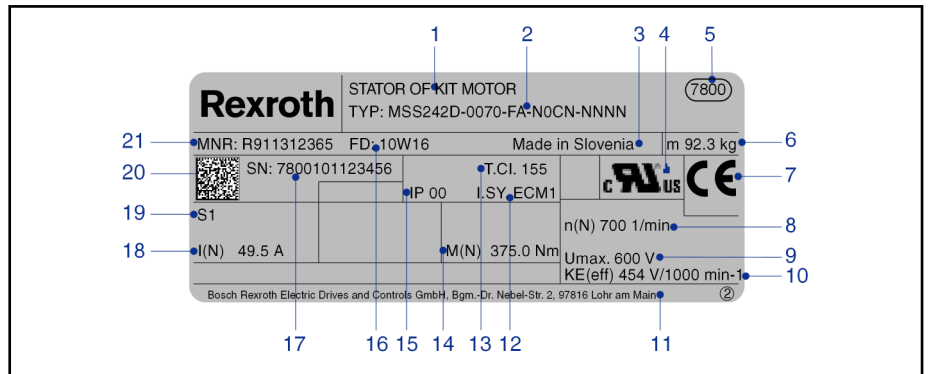
Fig.4-1: Type code MSS160, 200, 201, 203



Special versions may deviate from the details specified in these operating instructions. In this case, the related supplementary documentation must be requested.

4.2.3 Rating Plate MSS

An individual rating plate with the precise type designation and technical data is provided for each stator. Attach the rating plate to an well visible point of the machine. Thus, you will be able to read the motor data at any time without having to get into hardly accessible places where the built-in motor may be situated.



- 1 Type of machine
- 2 Type designation
- 3 Designation of origin
- 4 UL mark
- 5 Manufacturer
- 6 Mass in kg
- 7 CE conformity mark
- 8 Rated velocity in mode S1
- 9 Maximum input voltage
- 10 R.m.s. voltage constant
- 11 Company address
- 12 Insulation system
- 13 Thermal temperature class
- 14 Rated torque in mode S1
- 15 Protection class by housing
- 16 Production date
- 17 Serial number
- 18 Rated current in mode S1
- 19 Operation mode S1
- 20 Rexroth bar code
- 21 Part number

Fig.4-2: Example rating plate MSS

About this Product

4.2.4 Type Code MRS160, 200, 201, 203

Product
 MRS - - - - - - - - - -
 MRS = MBS kit motor rotor

Motor Frame Size
 MRS - - - - - - - - - -
 - = see project planning manual Rexroth MBS

Motor Frame Length
 MRS - - - - - - - - - -
 - = see project planning manual Rexroth MBS

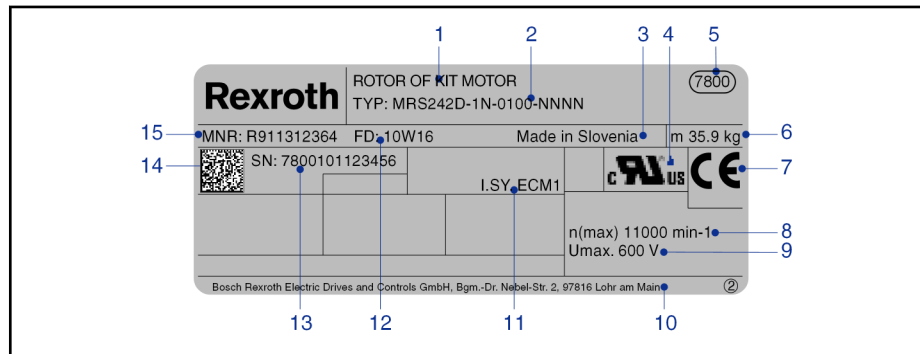
Rotor Design
 MRS - - - - - - - - - -
 - = see project planning manual Rexroth MBS

Rotor Inner Diameter
 MRS - - - - - - - - - -
 - = see project planning manual Rexroth MBS

Other Design
 MRS - - - - - - - - - -
 NN = none

Fig. 4-3: Type code MRS160, 200, 201, 203

4.2.5 Rating Plate MRS



- 1 Type of machine
- 2 Type designation
- 3 Designation of origin
- 4 UL mark
- 5 Manufacturer
- 6 Mass in kg
- 7 CE conformity mark
- 8 Highest allowed speed (mechanical)
- 9 Maximum input voltage
- 10 Company address
- 11 Insulation system
- 12 Production date
- 13 Serial number
- 14 Rexroth bar code
- 15 Part number

Fig. 4-4: Example type plate MRS

5 Transport and Storage

5.1 Notes about Transport (Shipping) Instructions

The motor components (rotor and stator) must be transported in their original package taking classes 2K2, 2B1, 2C2, 2S2, 2M1 specified acc. to DIN EN 60721-3-2 into account.

Please observe the following classification limitations:

- Transport temperature range -20 ... +80 °C
- Relative air humidity max. 75 % (at +30 °C)
- No occurrence of salt mist



Before transport, discharge the liquid coolant from the stators to avoid frost damage.

Warnings on the packaging of the secondary parts

On the packaging of the rotors, a self-adhesive warning label with the following warnings:

	<p>⚠ WARNING</p> <p>Health hazard to people with heart pacemakers, metal implants and hearing aids when in proximity to these parts!</p> <p>Strong magnetic fields due to permanent motor magnets!</p> <p>⇒ Anyone with pacemakers, metal implants or hearing aids are not permitted to approach or to handle these motor parts.</p> <p>⇒ If you have such conditions, consult with a physician prior to handling these parts.</p>	<p>⚠ WARNUNG</p> <p>Gesundheitsgefahr für Personen mit Herzschrittmachern, metallischen Implantaten oder Splintern und Hörgeräten in unmittelbarer Umgebung dieser Teile!</p> <p>Starkes Magnetfeld durch Permanentmagnete der Motorteile!</p> <p>⇒ Personen mit Herzschrittmachern, metallischen Implantaten oder Hörgeräten dürfen sich nicht diesen Motorteilen nähern oder damit umgehen.</p> <p>⇒ Besteht die Notwendigkeit für solche Personen, sich diesen Teilen zu nähern, so ist das zuvor von einem Arzt zu entscheiden.</p>
	<p>⚠ CAUTION</p> <p>Hazardous to fingers and hands due to high attractive forces of permanent motor magnets!</p> <p>Strong magnetic fields due to permanent motor magnets!</p> <p>⇒ Handle only with protective gloves! Handle with extreme care.</p>	<p>⚠ VORSICHT</p> <p>Quetschgefahr von Finger und Hand durch starke Anziehungskräfte der Magnete!</p> <p>Starkes Magnetfeld durch Permanentmagnete der Motorteile!</p> <p>⇒ Nur mit Schutzhandschuhen anfassen. Vorsichtig handhaben.</p>
	<p>⚠ CAUTION</p> <p>Hazardous to sensitive parts!</p> <p>⇒ Keep watches, credit cards, identification cards with magnetic strips, magnetic tape and ferromagnetic material (such as iron, nickel, and cobalt) away from magnetic parts.</p>	<p>⚠ VORSICHT</p> <p>Zerstörungsgefahr empfindlicher Teile!</p> <p>⇒ Uhren, Kreditkarten, Scheckkarten und Ausweise mit Magnetstreifen sowie alle ferromagnetische Metallteile wie Eisen, Nickel und Cobalt von den Permanentmagneten der Motorteile fernhalten.</p>

Fig.5-1: Warning sign on the packaging

5.2 Instructions on Machine Transport

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.

Transport and Storage

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

- ▶ Only use hoisting gear suited for the weight of the motors.
- ▶ Never walk under hanging loads.
- ▶ Use suitable protective equipment and protective clothing during transport, and wear safety shoes.
- ▶ Do not lift or move the motor by the loom of cables.
- ▶ Remove any existing transport locks prior to commissioning and keep them

Achtung! Handhabungs- und Lagervorschriften unbedingt beachten!	
Rotor Handhabung	<p>oder</p> <p>Kunststoffsicht</p>
Stator Rotor Lagerung	
Stator Handhabung	

Fig.5-2: Transport IndraDyn H



Please note DIN 580 standard on the transport of motors by means of lifting eye bolts. Non-observance of the information in this standard may cause overload of the lifting eye bolts and result in injury to persons or damage to products.

5.3 Product Storage

Store the motors in their original package at a dry, dust free, vibration free and light protected place without direct solar radiation. Please observe classes 1K2, 1B1, 1C1,1S1,1M2 specified for storage acc. to DIN EN 60721-3-2.

Please observe the following classification limitations:

- Storage temperature -20 ... +60 °C
- Relative air humidity 5 ... 95 %
- Absolute air humidity 1 ... 29 g/m³
- No condensation
- No ice formation/freezing
- No occurrence of salt mist

NOTICE

Damage due to moisture and humidity!

- ▶ Use coverings to protect the products from moisture.
- ▶ Store them only in rainproof and dry rooms.
- ▶ Before storage, discharge the liquid coolant from liquid-cooled motors to avoid frost damage.

On delivery, protective sleeves and covers may be attached to our motors. They must remain on the motor for transport and storage. Do not remove these parts until shortly before assembly.

5.4 Storage Times

Additional measures must be taken on commissioning to preserve proper functioning – irrespective of the storage time which may be longer than the warranty period of our products. However, this does not involve any additional warranty claims.

Motors

Storage time / months			Measures for commissioning
> 1	> 12	> 60	
■	■	■	Visual inspection of all parts to be damage-free
	■	■	Check the electric contacts to verify that they are free from corrosion
	■	■	Measure insulation resistance. At values < 1 kOhm per volt rated voltage dry winding.

Fig.5-3: Measures before commissioning motors that have been stored over a prolonged period of time

Transport and Storage

Cables and Connectors

Storage time / months			Measures for commissioning
> 1	> 12	> 60	
■	■	■	Visual inspection of all parts to be damage-free
	■	■	Check the electric contacts to verify that they are free from corrosion
		■	Visually inspect the cable jacket. Do not use the cable if you detect any abnormalities (squeezed or kinked spots, color deviations, ...).

Fig.5-4: Measure before commissioning cables and connectors that have been stored over a prolonged period of time

5.5 Transport by air freight

All MBS rotors can be dispatched according to IATA 953 without any further designation as air freight.

⚠ CAUTION

Possible influence of plane electronic on board through magnet fields!


⇒ Heed the packaging and transport instructions (IATA 953)

6 Assembly

6.1 General Information



The machine manufacturer has to consider the special characters of his construction and must work out special mounting instructions for the rotor and stator motor components. The machine manufacturer's mounting instructions are the only binding guidelines.

The project planning manual  Rexroth MBS synchronous kit spindle motors contain suggestions on assembling the rotor and stator components. This suggestion can be understood a guideline to estimate the necessary assembly effort and to prepare the necessary implements for assembly.

The scope and sequence of the steps described in the project planning manual can be influenced by the special features of the machine construction and the process.

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 the proper handling and processing, please refer to the manufacturer's data sheets under <http://www.loctite.de>. The manufacturer's homepage also provides information on hardening accelerators or other screw locks.

6.2 Mechanical Installation

6.2.1 Assembly Stator

WARNING

Strong magnetic forces may cause injury / damage!

⇒ The permanent magnets on the rotor and the resulting magnetic forces may cause the rotor to be abruptly pulled into the stator. Therefore, fasten the machine housing to the work table and only use lifting gear (e.g. crane with hoisting chains) which avoids uncontrolled movements of the rotor package while it is lowered into the stator.



Avoid ...

- jamming or clamping or pitching the housing while mounting it to the machine,
- damaging the centering collar on the housing and the machine.

Assembly



- In general, the stator must be connected to the machine via all mounting holes.
- All screwed connections must be provided with a liquid screw lock. See also "[Screw lock](#)" on page 29.
- The necessary screw length for fastening the stator depends on the machine construction.
- The screwed connections must be able to take up both the force due to the weight of the motor and the forces acting during operation.
- Use screws with the property class given on the dimension sheet. The property class of the screws and the hardness category of the washers must be equivalent in order to transmit the required tightening torques.

Starting position at assembly: The motor components lie flat on a clean and flat base.

1. Check whether the components are damaged. Damaged components may not be mounted.
2. Hold tools, auxiliary material, measuring and test equipment ready and make sure that the rotor can be mounted in a clean, dry and dust-free environment.
3. Check all components and mounting surfaces, holes and threads, as well as the O-ring grooves on the stator to verify that they are clean and free from burrs. Everything must be **clean, stainless and completely free from burrs**. Clean and deburr such areas if necessary.
4. Prior to assembly, clean the contact surfaces of the stators with a suitable cleaning agent (e.g., RIVOLTA A.C.S.3).
5. Screw the lifting eye bolts which are required for transport in mutually opposite threaded holes.

Ensure cleanliness during all of the working steps!

Fixing thread on the stator

Stator MSS...	Stator fixing thread		Ground connection	
	Dimensions	Number (per front face)	Dimensions	Number (per front face)
160	M5 / 17mm deep	8	M6 / 17 mm deep	1
200	M5 / 17mm deep	8	M6 / 17 mm deep	1
201	M5 / 17mm deep	8	M6 / 17 mm deep	1
203	M5 / 17mm deep	8	M6 / 17 mm deep	1

Fig. 6-1: Stator fixing thread



Refer to the respective stator dimension sheet for the precise position of the threaded holes [fig. 1-1 "Additional documentation" on page 13](#).

6.2.2 Mounting the Rotor

⚠ WARNING

Burns due to hot surfaces with temperatures over +100°C when shrinking the rotor onto the motor spindle!



- ▶ When assembling the rotor to the motor spindle, heat up the rotor to a temperature between +135 °C and +145 °C.
- ▶ Assemble the rotor with utmost caution. Wear heat-resistant working clothes and safety shoes.

⚠ CAUTION

Risk of injury due to deeply cooled parts with a surface temperature of min. -20 °C!

- ▶ Before shrink on the rotor, cool down the motor spindle to min. -20 °C. Assemble the hot rotor (rotor design 2N) onto the cooled-down spindle with utmost care. Wear heat and cold resistant working clothes and safety shoes.

⚠ WARNING

The rotor is magnetic! Risk of injury and danger of crushing body parts by magnetic forces!

⇒ Eliminate movable metal objects or secure against movement.



⇒ Strong magnetic and electromagnetic fields pose a health hazard for persons with heart pacemakers, metallic implants and hearing aids in the direct environment of motor components!

⇒ Refer to the information at [chapter 2.6.3 "Protection against Magnetic and Electromagnetic Fields"](#) on page 17.

When inserting the rotor into the stator, observe the radial and axial forces acting because of the magnetic force. Ensure by means of a mounting aid provided, that the rotor can be entered in a controlled manner into the stator and does not come into contact with the interior wall of the stator.

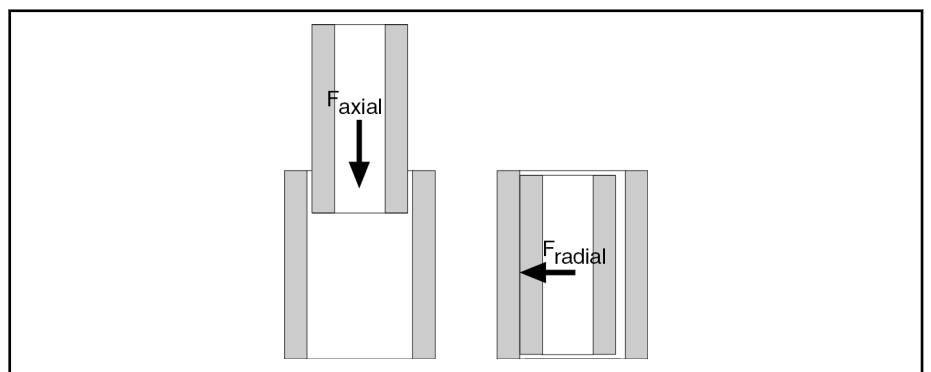


Fig. 6-2: Attractive forces during assembly

Assembly

Motor frame size		F_{axial} [N]	F_{radial} [N]
160	A	370	138
	C		263
	H		238
200	B	490	682
	C		1096
201	C	400	444
203	C	460	621

Fig.6-3: Magnetic attractive forces during assembly

6.3 Connection Technique

6.3.1 Power Connection

General Information

⚠ CAUTION

Direct connection to the 50/60 z external supply network (three-wire or single-phase network) results in motor destruction!

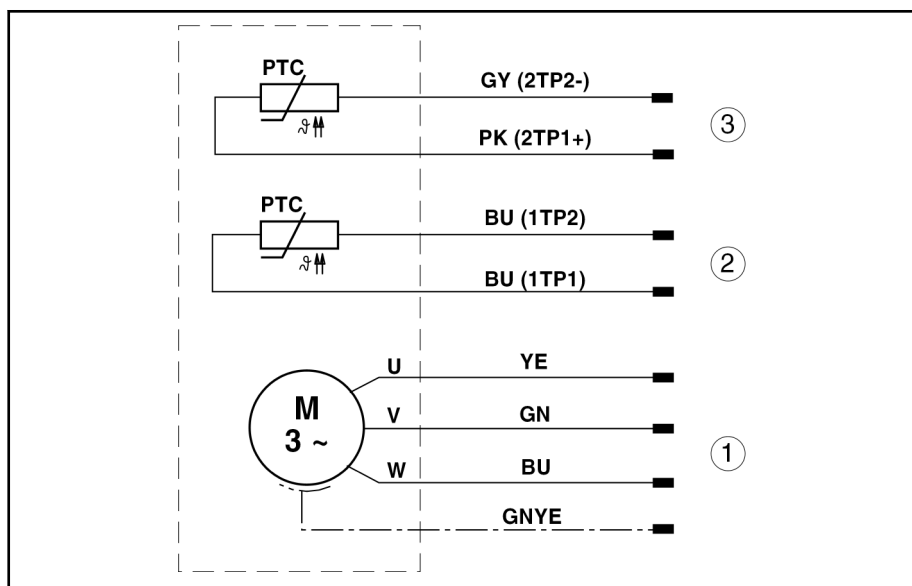
The motors described here may be operated only with suitable drive controllers with variable output voltage and frequency (converter mode) as specified by Rexroth.

The stator is provided with an approx. 1.5 m long power core (separate wires in a protective conduit). The connection strand consists of three power wired or three power wire pairs and two wire pairs for the PTC thermistor in the winding head.

Wire designation in connection strand

The power wires in the connection strand of the motor are designated at cross-section over 10 mm² with U-V-W.

Smaller power wire cross-section can vary in color.



- ① Power Connection
- ② Temperature sensor SNM.150.DK... (must be connected to controller for thermal motor protection)
- ③ Temperature sensor KTY84-130... (for external temperature utilization)

Fig. 6-4: Wire designation in power strand

Connection wires in connection strand

The cross-sections of the power wires in the connection strand depend on the rated current of the motor. You can find details via wire cross section in the following table.

The cross-section of the wire pairs for the motor PTC thermistor connection is 0.25 mm² (KTY84) or 0.5 mm² (SNM.150).



The connection strand is a motor internal connection. The insulation of the connection strand is designed for higher temperatures than for the power cable (connection between stator and controller). The details in the data sheet of the motor about the minimum wire cross-section of the power wires can deviate from the specified cross-section of the power wires in the connection strand in the following.

Assembly

Motor frame size	Cross-section of power wires in connection strand [mm ²]	Cross-section of control wires in connection strand [mm ²]	Diameter of connection strand (D) +/- 1 [mm]	Minimum bending radius static [mm]
MSS160A-020	2,5	2 x AWG 22 2 x 0,5	13	4 x D
MSS160C-060	16,0		22	
MSS160H-020	AWG 8		22	
MSS160H-028	AWG 8		22	
MSS200B-008	AWG 12		17	
MSS200B-050	16,0		22	
MSS200C-015	AWG 8		22	
MSS200C-050	16,0		22	
MSS201C-110	16,0		22	
MSS203C-065	25,0		30	

Fig.6-5: Connection wire cross-sections

Installation of connection strand

The connection strand, which is fixed on the stator, ends with open cables and is not allowed to subject to dynamically bending load after installation.

Please observe at the cable duct on the spindle housing that

- the specified allowed bending radius of the cable harness is not undercut (see [fig. 6-5 "Connection wire cross-sections" on page 34](#)),
- the edges of the through holes on the spindle housing are rounded or protected with a plastic sleeve.

Ground connection

The stator has a threaded hole for ground connection on both front sides. Fasten the ground cable with a ring terminal via one of the threaded holes .

You will find details about exact position and the used connection thread of the threaded hole in the dimension sheet of the particular motor. The minimum cross-section depends from the respective motor type. The corresponding data are listed in [fig. 6-5 "Connection wire cross-sections" on page 34](#).



The power wire cross section specified in the data sheet of the motor is also valid for the ground cable and must be kept

6.3.2 Temperature Sensors

MSS stators are standardly fitted with integrated temperature sensor SNM.150.DK.* to protect the motor. Furthermore all stators are fitted with an additional temperature sensor KTY84-130 for external temperature measurement.



- To ensure safe motor protection against thermal overload, the temperature sensor SNM150.DK must be connected to the drive controller.
- When connecting the temperature sensor KTY84-130 for external temperature measuring, heed the right polarity (see [fig. 6-4 "Wire designation in power strand" on page 33](#)).

6.3.3 Motor Cooling

General Information

You will find details about dimension and position of the coolant connection in the particular motor dimension sheet.

Install systems in the cooling circuit for monitoring flow, pressure and temperature.



To supply the motors with coolant, you will need additional installation material as e.g. couplings, hoses and fixing clamps (not included in the scope of delivery).

The machine manufacturer is responsible for ensuring that the coolant port is tight and for verifying and accepting this tightness after the motor has been installed.

Moreover, the maintenance schedule of the machine should provide for a regular check of the proper state of the cooling port.

Design and sealing of the coolant connection

Bosch Rexroth therefore recommends to use screw connections which already contain an O-ring for sealing the screw connection in axial direction to seal the coolant connection thread.

Seals consisting of hemp, teflon tape or cone-shaped screw connections are not suitable because this type of seal may stress the connection thread on the motor to an unreasonably high extent and/or damage it permanently when doing it unprofessionally.

You will have the following possibilities to connect the liquid cooling:

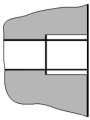
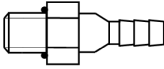
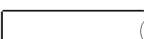

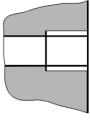
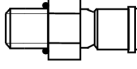
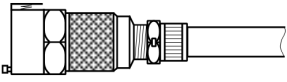
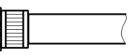
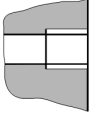
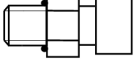
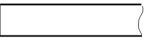
Connection mode	Drawing			
Tube olive	Motor 	Tube olive with R1/2" thread 	Tube 	Tube clip 
Quick coupling	Motor 	Coupling with R1/2" thread 	Coupling with clamped screw connection 	Tube 
Clamped connection	Motor 	Clamped connection with R1/2" thread 	Tube 	

Fig. 6-6: Connection examples of the liquid cooling

Operating Pressure

A maximum coolant supply pressure of **6 bar** applies to all stators, regarding the pressure effectively existing directly at the coolant connection of the motor.

Assembly

Please observe, that additional threads or branch connections in the cooling circuit can reduce the flow and supply pressure of the coolant.

Select generous dimensioned connection threads and tube diameters.

6.3.4 Motor encoder

Encoder and encoder connection components are not included in the scope of delivery of the motor. Select the components according to the requirements of the machine.

7 Commissioning and Operation

7.1 Safety

WARNING

High electrical voltage! Danger to life, risk of injury due to electric shock.



Live parts are dangerous.

- ▶ Do not open any covers or flange sockets during operation.
- ▶ Never connect or disconnect plug connectors and connection terminals under load!

WARNING

Risk of injury due to rotating motor shaft!



Do not remove any covers, machine parts or protection devices during operation.

- ▶ Do not enter the range of movement of the machine. Prevent persons from entering this area, e.g., by means of
 - safety fence, safety guards, protective covers
 - Optical sensors

CAUTION

Thermal danger due to hot surfaces with temperatures over 70 °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 Commissioning

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

- Make sure that the motor cooling and also the motor are mechanically and electrically connected correctly.
- Ensure that the motor and all participating components of the drive (e.g. encoder, cooling system, brake ...) are undamaged and operating correctly.
- Make sure that the axis can freely rotate over the whole rotational area.
- Please observe the general safety instructions on the protection against hazardous movements [chapter 2.6.2 "Protection against Mechanical Hazards" on page 17.](#)

7.3 Operation

During operation, adhere to the ambient and operation conditions and technical data specified in the project planning manual  Rexroth IndraDyn H.

Checks during operation:

- ▶ Pay attention to exceptional noise.
- ▶ Pay attention to increased vibrations.

Commissioning and Operation

- ▶ Check the motor for cleanliness.
- ▶ Check the cooling water connections for tightness.
- ▶ Check the monitoring devices and diagnostic / error messages of the controllers.

Decommission the drive when deviations from normal operation exist. For further procedure refer to [chapter 11 "Troubleshooting" on page 47](#) .

8 Maintenance and Repair

8.1 Cleaning and Servicing

WARNING

Danger! Electric voltage! 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.

Prior to commencing work:

1. Isolate (even auxiliary circuits).
2. Protect the system or plant against restart.
3. Ensure de-energization.
4. Ground and short-circuit.
5. Cover or shield any adjacent live parts.

WARNING

Maintenance work during ongoing operation may result in personal injury and material damage!



- ▶ Do not carry out any maintenance measures while the machine is running.
- ▶ During maintenance work, protect the system against re-starting and unauthorized use.

CAUTION

Hot surfaces with temperatures over 70 °C may cause burns!



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

Motors

Excessive dirt, dust or chips may adversely affect the functionality of the motors and, in extreme cases, even cause a failure of the motors. Clean the motors at regular intervals (after one year at the latest) to reach a sufficiently high heat emission surface. If the cooling fins, for example, are partially covered with dirt, sufficient heat dissipation via the ambient air is no longer ensured.

Connection cable

WARNING

Contact with live parts may cause death by electrocution!



- ▶ Change damaged connection cables and decommission the plant immediately.
- ▶ Do not repair any connection lines provisionally.

- Check connection cables for damage at regular intervals and replace them, if necessary.

Maintenance and Repair

- Check any optional energy management chains (drag chains) for defects.
- Check the protective conductor connection for proper condition and firm seating at regular intervals and replace it, if necessary.

8.2 Service Repair, Maintenance and Spare Parts

Synchronous motors of the IndraDyn H series operate maintenance-free within the operating conditions and service life specified. However, operation under unfavorable conditions can lead to limitations in availability.

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

Bosch Rexroth recommends the following maintenance measures based on the machine manufacturer's maintenance plan:

Measure	Interval
Check the coolant 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 chamber from the motor housing, cooling fins and connections.	Depending on the degree of soiling, but after one operating year at the latest.

Fig. 8-1: IndraDyn H maintenance measures

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** under:

Phone: **+49 (0) 9352 40 5060**
 Fax: **+49 (0) 9352 18 4941**
 E-mail: service.svc@boschrexroth.de
 Internet: <http://www.boschrexroth.com>

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

Service worldwide

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

Preparing information

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

- Detailed description of the fault and the circumstances

Maintenance and Repair

- 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

DANGER

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

- ⇒ Do not work on running or unprotected machines.
- ⇒ Secure the machine against accidental movements and against unauthorized operation before starting disassembly.
- ⇒ Before dismantling the motor and power supply, secure them against dropping or movement before detaching the mechanical connections.



The machine manufacturer has to consider the special characters of his construction and must work out special dismantling instructions for the rotor and stator motor components. The machine manufacturer's dismantling instructions are the only binding guidelines.

1. Please observe the dismantling instructions of the machine manufacturer.
2. Use the machine-side control command to decelerate the drive to a controlled standstill.
3. Switch off the power and control voltage of the controller.
4. Switch off the master switch of the machine and deactivate external systems according to the manufacturer's instructions.
5. Secure the machine against accidental movements and against unauthorized operation.
6. Wait until the discharge time of the electrical systems has elapsed and disconnect all electrical connections, if necessary. Protect all electrical cables and contacts against contact with other electrically conducting parts.
7. Remove dirt, shavings or other residues from the motor.
8. Before dismantling the motor and the supply lines, secure them against dropping or moving and disconnect the mechanical connections only thereafter.
9. Empty the coolant ducts of the motor and dismantle the motor from the machine. Store the motor properly!
10. Document all executed measures in the commissioning report or in the machine maintenance plan.

10 Environmental Protection and Disposal

The disposal of the motor components can be done in the normal recycling process under consideration of the respective valid national regulations.




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.

Significant motor components

Basically, our motors consist of the following components:

- Steel, aluminum, copper, brass
- Plastics, insulating 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. They have to be recycled separately or disposed of according to the applicable legal provisions.

⚠ 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 such as watches, credit cards, ...



The permanent magnets on the rotor must be demagnetized before disposal to avoid injuries or damage.

Demagnetize magnets

The demagnetization of the magnets on the rotor is reached via a special thermal handling. The handling duration is influenced by the frame size of the rotor. The rotor must remain for 30 minutes in the oven, starting at the time, the magnetic surface has reached 300 °C. If the magnets are surrounded by a bandage, we recommend to remove them before heating-up the rotor in an oven to unfold the magnets.



In the case of successful demagnetization, the magnets can be separated from the rotor sleeves after cooling of the rotor without any effort.

Packaging

Out packaging materials do not contain any problematic materials and can be recycled without any problems. The following are suitable as packaging materials: wood, cardboard and polystyrene.

Batteries and Accumulators

Batteries and accumulators can be labeled with this symbol.

Environmental Protection and Disposal



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. Outside the validity of the EU Directive 2006/66/EC, the particularly applicable regulations must be followed.

Used batteries can contain hazardous substances which can harm the environment or people's health when improperly stored or disposed of.

After use, the batteries or accumulators contained in Rexroth products must be properly disposed of according to the country-specific collection systems.

Disposal by the manufacturer

Our products can be returned to us for disposal. Please observe that no adherences like oil, grease or other foreign materials or components are contained.

The motor components must be delivered in a suitable packaging (use origin package if applicable). Observe the Hazardous Goods Regulations (IATA) when transporting the rotor by air.

Deliver the products "free domicile" to the following address:

Bosch Rexroth AG
Electric Drives and Controls
Buergermeister-Dr.-Nebel-Strasse 2
97816 Lohr am Main, Germany

11 Troubleshooting

11.1 Proceed as follows:

Possible causes for the malfunctioning of IndraDyn H motors can be limited to the following areas:

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

Encoder and temperature sensor are controlled by the controller or the control unit; corresponding diagnostic messages are displayed. Observe the instructions in the corresponding documentation.

The following sections describe some failure states with possible causes by way of example. This list is not exhaustive.


Malfunction	Failure cause	Measures
The motor does not run	Drive enable is missing	Activate the drive enable
	Controller fault	Troubleshooting according to the documentation of the controller
	Supply voltage is missing	Check the supply voltage
	Brake is not released	Check the brake activation
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 are loose	Lock the screw connections as specified
Running noise	Foreign bodies within the motor	Stop operation of the motor -> repair by manufacturer
	Bearing is damaged	Stop operation of the motor -> repair by manufacturer
High motor temperature Motor temperature monitoring unit responds	Operation outside of characteristic data	Reduce the load, check the sizing if necessary
	Heat dissipation is impaired	Clean the motor Check the coolant circuit of liquid cooling systems
Wrong or incorrect temperature displayed	Temperature sensor not connected	Connect the temperature sensor
	Temperature sensor is defective	Stop operation of the motor -> repair by manufacturer

Fig. 11-1: Faults on IndraDyn H motors



In the case of malfunctions or troubleshooting, please observe the notes in the project planning manual, too. If necessary, the manufacturer must be contacted.

12 Technical Data

Technical Data and operating characteristic curves for all motor types are described in the project planning manual  Rexroth MBS.

Appendix

13.2 Declaration of Conformity (Translation)

Electric Drives
and Controls

Hydraulics

Linear Motion and
Assembly Technologies

Pneumatics

Service

Rexroth
Bosch Group**EC Declaration of Conformity**

(Translation of the original Declaration of Conformity)

Doc. No.: TC30322-4**Date:** 2012-10-19

- in accordance with Machinery Directive 2006/42/EC
 in accordance with Low Voltage Directive 2006/95/EC
 in accordance with EMC Directive 2004/108/EC
 in accordance with Pressure Equipment Directive 97/23/EC
 in accordance with ATEX Directive 94/9/EC

The manufacturer

Bosch Rexroth AG
 Bürgermeister-Dr.-Nebel-Straße 2
 97816 Lohr a. Main / Germany

hereby declares that the product below

Name: Frameless spindle motor MBS

Types:

Rotors	MRS102	MRS142	MRS160	MRS162	MRS182
	MRS200	MRS201	MRS202	MRS203	MRS242
	MRS272	MRS312	MRS382	MRS482	
Stators	MSS102	MSS142	MSS160	MSS162	MSS182
	MSS200	MSS201	MSS202	MSS203	MSS242
	MSS272	MSS312	MSS382	MSS482	

From date of manufacture: 1996-07-01

was developed, designed and manufactured in compliance with the above-mentioned EU directive.

Harmonized Standards applied:

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

Further explanations:

This product is a built-in unit which, owing to its installation characteristics, is not able to comply with the regulations for complete apparatus, machines or installations from the outset. For this reason, it may only be used for built-in purposes.

The product may only be assessed with regard to its electrical and mechanical safety as well as to environmental effects (foreign bodies, moisture) after it has been installed in the product intended for the final user.

After the product has been installed, its EMC properties may change. Hence the product intended for the final user (complete apparatus, machines or installations) should be inspected with regard to its EMC properties by the manufacturer of the product intended for the final user.

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

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Notes

Bosch Rexroth AG
Electric Drives and Controls
P.O. Box 13 57
97803 Lohr, Germany
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
Tel. +49 9352 18 0
Fax +49 9352 18 8400
www.boschrexroth.com/electrics



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