



Macchine base Base Machine

BM1/2/3 e BMR1/2



Manuale di installazione e manutenzione Installation and Maintenance Manual



Via dell'Industria, 4, 26010 Vaiano Cremasco (CR) ITALY
Tel.: +39 0373 278505 – fax.: +39 0373 278065

E-mail: autorotor@autorotorgroup.com - web: <http://www.autorotorgroup.com>

REV. 1
11-03-25

INDICE GENERALE

DICHIARAZIONE DI INCORPORAZIONE	5
CONDIZIONI DI GARANZIA	6
PRESENTAZIONE DELLA SOCIETÀ	8

1 INTRODUZIONE	9
1.1 SIMBOLOGIA IMPIEGATA.....	9
1.2 INFORMAZIONI GENERALI.....	10
1.3 RIFERIMENTI NORMATIVI.....	11

2 TRASPORTO	12
2.1 AVVERTENZE PER IL TRASPORTO.....	12
2.2 IMBALLO	13
2.3 IMMAGAZZINAMENTO	14
2.4 DISIMBALLO.....	14
2.5 MOVIMENTAZIONE	15
2.6 SOLLEVAMENTO CON FUNI E CATENE	16

3 DESCRIZIONE DELLA MACCHINA BASE	17
3.1 TARGHETTA IDENTIFICATIVA	17
3.2 DESCRIZIONE.....	18
3.3 MACCHINA BASE A TAVOLA ROTANTE.....	20
3.4 MACCHINA BASE AD ANELLO ROTANTE.....	21
3.5 USO PREVISTO E NON PREVISTO	22

4 INSTALLAZIONE.....	23
4.1 VERIFICA DEL PRODOTTO ACQUISTATO	23
4.2 AVVERTENZE GENERALI.....	23
4.3 POSIZIONAMENTO	25
4.4 INSTALLAZIONE PORTAPEZZI.....	25
4.5 COLLEGAMENTI ELETTRICI.....	26
4.6 ACCENSIONE E MESSA IN SERVIZIO	27

5 NORME DI SICUREZZA PER L'USO.....	28
5.1 RISCHI RESIDUI.....	28

6 MANUTENZIONE	29
6.1 NORME DI SICUREZZA DURANTE LA MANUTENZIONE.....	29
6.2 MANUTENZIONE ORDINARIA	30

GENERAL CONTENTS

DECLARATION OF INCORPORATION.....	5
WARRANTY CONDITIONS.....	7
INTRODUCTION TO OUR COMPANY.....	8

1 INTRODUCTION	9
1.1 SYMBOLS USED.....	9
1.2 GENERAL INFORMATION	10
1.3 NORMATIVE REFERENCES	11

2 TRANSPORT	12
2.1 TRANSPORT WARNINGS	12
2.2 PACKING.....	13
2.3 STORAGE.....	14
2.4 UNPACKING.....	14
2.5 HANDLING.....	15
2.6 LIFTING BY MEANS OF ROPES AND CHAINS	16

3 DESCRIPTION OF THE BASE MACHINE.....	17
3.1 IDENTIFICATION PLATE.....	17
3.2 DESCRIPTION.....	18
3.3 ROTARY TABLE BASE MACHINE	20
3.4 ROTARY RING BASE MACHINE	21
3.5 INTENDED AND UNINTENDED USE	22

4 INSTALLATION.....	23
4.1 CHECK OF THE PURCHASED PRODUCT	23
4.2 GENERAL WARNING	23
4.3 POSITIONING.....	25
4.4 WORKPIECE HOLDER INSTALLATION	25
4.5 ELECTRIC CONNECTIONS	26
4.6 POWERING ON AND COMMISSIONING.....	27

5 SAFETY RULES FOR USE	28
5.1 RESIDUAL RISKS	28

6 MAINTENANCE	29
6.1 SAFETY RULES DURING MAINTENANCE	29
6.2 ORDINARY MAINTENANCE	30

INDICE GENERALE

6.3 LUBRIFICAZIONE.....	31
6.4 GUASTI E ANOMALIE	31
6.5 RICAMBI.....	31
6.6 REVISIONE COMPLETA	32

7 SMALTIMENTO	33
----------------------------	-----------

8 COMPONENTI MACCHINE BASE.....	34
8.1 BM1	35
8.2 BM2.....	36
8.3 BM3.....	37
8.4 BMR1	38
8.5 BMR2.....	39

GENERAL CONTENTS

6.3 LUBRICATION	31
6.4 FAULTS AND ANOMALIES	31
6.5 SPARE PARTS	31
6.6 COMPLETE OVERHAUL.....	32

7 DISPOSAL.....	33
------------------------	-----------

8 BASE MACHINE COMPONENTS	34
8.1 BM1	35
8.2 BM2.....	36
8.3 BM3.....	37
8.4 BMR1	38
8.5 BMR2.....	39



**DECLARATION OF INCORPORATION
FOR PARTLY COMPLETED
MACHINERY
ANNEX II 1.B
(UNDER DIRECTIVE 2006/42/EC)**

TRANSLATION OF ORIGINAL DECLARATION

**DICHIARAZIONE DI INCORPORAZIONE
PER LE QUASI-MACCHINE**

**ALLEGATO II 1.B
(AI SENSI DIRETTIVA 2006/42/CE)**

DICHIARAZIONE ORIGINALE

**AUTOROTOR SRL
Via dell'Industria, 4 - I-26010 Vaiano Cremasco (CR) - Italia**

**STATES THAT
THE PARTLY COMPLETED MACHINERY
COMPLIES**

**DICHIARA CHE
LA QUASI-MACCHINA
È CONFORME**

with the Directive 2006/42/EC of the European Parliament and the Council of 17 May 2006 on machinery and amending Directive 95/16/EC as regards the EHSR Annex I below:

- 1.3.1. Risk of loss of stability
- 1.3.2. Risk of break-up during operation
- 1.3.4. Risks due to surfaces, edges or angles
- 1.5.8. Noise

The relevant documentation has been prepared in accordance with Annex VII Part B.

AUTOROTOR SRL undertakes to provide, in response to duly reasoned request by the competent national authorities, information on partly completed machinery.

It is prohibited from putting into service of the partly completed machinery described above before the machine where it is built or assembled has been declared in conformity with the provisions of DIRECTIVE 2006/42/EC.

The person authorized to provide the relevant technical documentation, established in the Community is the Autorotor Legal Representative, via dell'Industria 4, 26010 Vaiano Cremasco (CR) Italy.

alla Direttiva 2006/42/CE del Parlamento Europeo e del Consiglio del 17 maggio 2006 relativa alle macchine e che modifica la direttiva 95/16/CE, per quanto riguarda i RESS allegato I riportati di seguito:

- 1.3.1 rischio di perdita di stabilità
- 1.3.2 rischio di rottura durante il funzionamento
- 1.3.4 rischi dovuti a superfici, spigoli od angoli
- 1.5.8 rumore

La documentazione pertinente è stata redatta in conformità all'allegato VII parte B.

AUTOROTOR SRL si impegna a trasmettere, in risposta ad una richiesta adeguatamente motivata delle autorità nazionali, informazioni sulla quasi-macchina.

E' fatto divieto di messa in servizio della quasi-macchina sopra descritta prima che la macchina in cui sia incorporata o assemblata sia stata dichiarata conforme alle disposizioni della DIRETTIVA 2006/42/CE.

La persona autorizzata a costituire la documentazione tecnica pertinente stabilita nella Comunità è il Legale Rappresentante Autorotor, via dell'Industria 4, 26010 Vaiano Cremasco (CR).

PRODUCT NAME / NOME PRODOTTO	
SERIAL NUMBER / MATRICOLA	
CALIBRATION / TARATURA	

Vaiano Cremasco,

The Legal Representative

Daniele Comassi

WARRANTY CONDITIONS



EN

Terms and Conditions of Standard Sale (rev.2020)

1. DEFINITIONS:

In these Terms and Conditions of Sale, "Seller" means Autorotor; "Purchaser" means the person, natural or legal, by whom the order is made; "Goods" mean the goods (including Software and Documentation, as defined in article 8) described in the Order Confirmation Form prepared by the Seller; "Services" mean the services described in the Order Confirmation Form prepared by the Seller; "Contract" means the contract or written format (including these Terms and Conditions) concluded between Purchaser and Seller and having for its purpose the supply of Goods and/or the rendering of Services; "Contract Price" means the price to be paid by the Purchaser to the Seller in consideration for the supply of Goods and/or the rendering of Services.

2. THE CONTRACT:

2.1 All orders should be made in writing and they are accepted in conformity with these Terms and Conditions of Sale. No term or condition proposed by the Purchaser, and no declaration, warranty or other affirmation which is not contained in the Seller's offer or in the Order Confirmation, or which is not otherwise expressly accepted in writing by the Seller shall be binding for him.

2.2 The Contract shall only come into force from the date of acceptance of the Purchase Order when the Seller sends his Order Confirmation, or from the date of acceptance of the Purchase Order for the Contract, according to which occurs the latest (the "Commencement Date"). Should the description of the Goods or Service contained in the Seller's offer differ from their description as contained in the Order Confirmation, the provisions found in the latter shall prevail.

2.3 No alteration or change in the Contract could take place unless it is agreed in writing by both parties. However, the Seller reserves the right to make minor amendments and/or improvements to Goods prior to their delivery, as long as the operation of the Goods does not turn out to be affected and the Contract Price and the delivery date are not changed.

3. OFFER AND PRICE VALIDITY:

3.1 As long as not previously withdrawn, the Seller's offer can be accepted within the time-limit indicated therein or, in default of this being so indicated, within thirty days of the issue date.

3.2 The indicated period may be prolonged for delivery during the time-limit shown in the Seller's offer, and they are meant to be net of Value Added Tax and other like taxes, levies or burdens of any kind as apply outside Italy with regard to the execution of the Contract.

3.3 Prices relate to Goods delivered EXW (ex warehouse) from Seller's delivery point, net of transport, insurance and internal transport (saving any contrary direction in the Seller's offer), and they exclude the packaging. Should the Goods be packaged, the packaging materials are nonreturnable, and shall be subjected to the Seller's former written consent.

4. PAYMENT:

4.1 Payment shall be effected as indicated in the offer and later in the Order Confirmation, and in the currency indicated in the Seller's offer, unless otherwise specified. The Goods shall be invoiced at any time after notice has been given to the Purchaser of their availability for delivery. Should the payment term for the sale of Goods be longer than the time-limit indicated in the Seller's offer, the same shall be adopted within a time limit of less than a month, on the date of their completion. Saving any other right pertaining to the Seller, the latter reserves the option to demand interest on unpaid amounts at a rate of 2% (or such higher rate as may be agreed in terms of the current laws) for the period of delay; suspend the execution of the Contract (thereby including the option of suspending deliveries) should the Purchaser omit to, or according to the reasonable judgement of the Seller it would seem probable that the Purchaser will omit effecting payments at the time when they are due by virtue of the Contract or of any other agreement; and to request at any time sufficient warranties to ensure that payment is effected according to the reasonable judgement of the Seller.

5. TERMS OF DELIVERY, PACKAGING, RISK AND OWNERSHIP:

5.1 Subject to a different direction in the Seller's offer, the terms of delivery or of completion start running from the Commencement Date and should only be considered to be indicated by the date of delivery or completion, saving any other contractual obligation relating to it.

5.2 Should the Seller incur any delay or he is impeded from fulfilling the services assumed by him in the Contract due to Purchaser's own actions or omissions or to those of his agents (therby including, simply by way of example, failure to indicate the specifications and/or to deliver executive drawings with precise directions as to size and/or the failed forwarding of every other information which is reasonably required by the Seller for the purpose of the timely fulfilment of the obligations assumed in the Contract), the terms of delivery/completion and the Contract Price shall both be altered as a result.

5.3 Should the delivery undergo delays due to the Purchaser's actions or omissions, or should he omit, having been given notice that the Goods are ready for delivery, receiving the delivery or omit giving proper instructions relating to the delivery, the Seller shall have the option of depositing the Goods in a suitable warehouse, at Purchaser's expense. Having deposited the Goods in such place, the delivery will be considered as having taken place, all risk related to the Goods will pass on to the Purchaser, and the latter shall make to the Seller all due payments.

5.4 Saving different provisions in the Contract, the Goods shall be delivered with paid transport up to the destination indicated in the Contract; transport, packaging and internal transport shall be debited at Seller's standard rates. The specific packaging for the Goods being delivered, consists of wooden crates/box for tables, base/special machinery. It consists of carton or wooden boxes for equipment and spare parts. Any other required packaging will have to be agreed with the former written consent between the parties. The risk of loss of or damage to the Goods shall pass on to the Purchaser at the time of delivery as mentioned above, and the Purchaser shall be responsible for the insurance of the Goods after that the risk has been so transferred. Alternatively, should it be expressly laid down in the Contract that the Seller is responsible for the insurance of the Goods following their delivery to the carrier, the costs of such insurance shall be debited at Seller's standard rates. "Exworks", "FCA", "FOB", "CIF", "DAP", and any other time-limit of delivery made use of in the Contract shall have the meaning given in the most recent version of Incoterms®.

5.5 Saving the provisions of article 5 below, the ownership of the Goods shall pass on to the Purchaser at the time when the Purchaser shall have settled in full the relative payment.

6. FORCE MAJEURE:

6.1 The execution of the Contract (with the exception of the Purchaser's obligation to effect payment of all due amounts to Seller by virtue of the same Contract) shall be excluded, excluding all responsibility, in case and in any measure which such execution is impeded or delayed because of any fact or circumstance beyond the reasonable sphere of control of the party which turns out to be affected, including, simply by way of example, acts of God, strikes, lock-out, lock-in, civil unrest, strikes, acts of terrorism, acts of sabotage, the demand to comply with orders and regulations of any kind emanated by Public Authorities (including, simply by way of example, the prohibition to export or re-export or the failed granting or revocation of valid export licenses), labor unrest, strikes, lock-in/lock-outs or injunctions. Seller shall not be in any way bound to supply any hardware, software, services or technologies unless and until he would have received the required licenses or permits or would have requested general licenses or exemptions from the need for licenses in terms of the rules, laws, regulations, ordinances and requirements which apply on the subject of import and export control and related sanctions, in such manner as altered from time to time (including, simply by way of example, the current laws in the United States, in the European Union and in such jurisdiction where the Seller would have set up his office premises or from where the goods are supplied). If for any reason any of such licenses, permits or approvals are denied or revoked, or should there be any changes in any such current rules, laws, regulations, ordinances or requirements, the Seller shall be entitled to withdraw from the Contract according to the Seller's reasonable judgement which would otherwise expose the Seller and/or the Seller's Affiliates to the risk of liability in terms of the current rules, laws, regulations, ordinances or requirements, the Seller shall be free and without any liability from all obligations deriving from the Contract.

6.2 Should the fulfillment of the obligations of any of the Parties be delayed or impeded by virtue of the present article 6 for a period exceeding 180 consecutive calendar days, each party will be able to withdraw from the Contract limitedly with regard to that part of it as not to be followed, by written notice given to the other party, without any liability, given that the Purchaser shall be bound to pay reasonable costs and expenses relating to any work which would be in the course of execution, and to pay for the delivered Goods and rendered Services up to the date of dissolution. The Seller could effect split deliveries; in such case each delivery will constitute a separate contract, and the omission of one or more such deliveries in conformity with their expiry dates shall not entitle the Purchaser to dissolve the whole Contract or refuse its execution.

7. TRIALS, INSPECTIONS AND FACTORY CALIBRATIONS:

7.1 The Goods shall be inspected by the Seller or by the manufacturer and, where possible, subjected to the Seller's standard tests or those of the manufacturer before delivery. Any further trial or inspection (including the inspection made by the Purchaser or by his representative, or trials made in the presence of the Purchaser or of his representative and/or calibrations), or the issuing of certificates attesting to the making and/or the outcome of the trials, shall be subjected to the Seller's former written consent; the latter reserves the right to demand a fee. Should the Purchaser or his representative not show to render assistance in the making of such trials, inspections and/or calibrations following an advance notice of seven days that the Goods are available for the trials, inspections and/or calibrations, these shall take place in any case, and shall be taken to have been effected in the Purchaser's presence or that of his representative; in such case the Seller's declaration that the goods have passed the trials and inspections and/or that they have been calibrated shall be final.

7.2 Complaints about deliveries done in lesser or incorrect quantities shall have no effect if lodged later than 14 days from the date of delivery.

8. DOCUMENTATION AND SOFTWARE:

8.1 Ownership and copyright relating to the software and/or firmware incorporated or supplied for use in connection with the Goods ("Software") and the documentation supplied together with the Goods ("Documentation") shall still pertain to the Seller, and shall not be transferred with them to the Purchaser.

8.2 Save as may be otherwise established in the Contract, a non exclusive application is being assigned to the Purchaser, for the use of the Software and Documentation having to do with the Goods, on condition and until the application and the Documentation are not copied (saving any express provision to the contrary) and are not disclosed to third parties without revealing their contents to third parties and/or without allowing third parties to have access to them (with the exception of standard manuals for use and maintenance supplied by the Seller). The Purchaser shall be able to transfer the application to persons who acquire the Goods in ownership or on hire, including leasing, as long as such persons accept and agree in writing that they are bound by the rules established in this article 8.

8.3 The Seller and the Seller's Affiliates shall retain title on all inventions, drawings and processes created or developed by them and, saving the provisions of this article 8, no intellectual property right is being granted on the score of this Contract.

9. DEFECTS AFTER DELIVERY (The guarantee is EXW Autorotor)

9.1 The Seller guarantees unless otherwise indicated in the Contract, full and unencumbered ownership and the full and unconditional right of use of the Goods; that the manufactured Goods of the Seller and/or the Seller's Affiliates conform with the technical specifications given by the Seller and/or the Seller's Affiliates and that the Services rendered by the Seller and/or the Seller's Affiliates shall be performed with all reasonable skill, care and diligence, in conformity with the state of the art in engineering. The Seller shall eliminate, by repairing or, at his own discretion, substituting one or more pieces of spare parts, any fault or defect emerging during the normal use, care and maintenance of the Goods manufactured by the Seller's Affiliates and notice of which is given to the Seller within 60 days from delivery of such Goods, and which exclusively result from defective materials or workmanship, always on condition that the defective goods are returned to the Seller at Purchaser's expense, with pre-paid transport and insurance, within the Warranty Period.

Autorotor Company guarantees its products for a period of 24 months (8 working hours per day) from the date of shipment, and the guarantee is EXW Autorotor. The substituted parts shall become the property of Autorotor. The repaired or substituted parts shall be delivered by the Seller, at the Seller's expense, at the Purchaser's registered premises in Italy, or, overseas. The Seller shall put in order defects encountered with the Services rendered by the Seller or by the Seller's Affiliates and discovered by the Seller within ninety days from the termination of the said Services. Such Goods or Services as are repaired, substituted or put in order in conformity with this article 9.1 shall benefit of the above mentioned warranty for the time-limit which is last reached between the following: the proportion of the Warranty Period which has not

yet passed, or ninety days passing from the date of their return to the Purchaser (or from the date of their termination or putting in order in the case of Services).

9.2 The Goods or Services obtained by the Seller from third parties (not being the Seller's Affiliates) for re-sale to the Purchaser shall exclusively enjoy the warranty granted by the original manufacturer.

9.3 Notwithstanding the provisions of articles 9.1 and 9.2 above, the Seller shall not be liable for the faults and defects caused by: normal wear and tear; materials or manufacturing or assembly processes performed, supplied or specified by the Purchaser; non observance of the Seller's directions relating to conservation, installation, use or environmental requirements; lack of adequate maintenance; any change or repair as would not have been previously approved in writing by the Seller; use of unauthorized software or spare parts. The costs incurred by the Seller to investigate, ascertain and put in order such defects shall be refunded by the Purchaser upon request. The Purchaser shall in all cases be fully and solely responsible for the accuracy and adequacy of any information supplied by it.

9.4 Saving the provisions of article 11, the contents hereof constitute the sole warranty given by the Seller, besides the sole remedy which could be activated by the Purchaser for breach thereof. No further declaration, warranty or condition, whether express or implicit, shall apply with reference to the good quality, merchantability, suitability for any specific use or for any other aspect relative to any Good or Service.

10. BREACH OF PATENTS, ETC.

10.1 Saving the limits of liability referred to in article 11 below, the Seller shall hold harmless the Purchaser from any request for compensation deriving from a breach of Patents, Registered Designs, Design Rights, Trade-Marks or Copyright ("Intellectual Property Rights") existing as on the date of concluding the Contract, wherever such breach is consequential to the use or the sale of the Goods. The items which are held harmless are all reasonable costs incurred by the Purchaser, besides the amount imposed on them in judgement, in consequence of the institution of judicial action for breach of the above-mentioned rights, or in consequence of the potential or intended institution of such action. The seller shall not be bound to hold harmless the Purchaser should the breach be a consequence of the execution, by Seller's plans and/or directions, of a given order or of the use of the Goods, before or after the date of the Contract was concluded, or in a case which has not been specified or referred to the Seller previously as the date of the Contract.

10.2 The Purchaser guarantees that any plan it prepares, or instruction it gives, shall not determine the breach, on the Seller's part, of any Intellectual Property Right in consequence of the execution of the obligations taken up by it through the Contract. The Purchaser shall reimburse the Seller all reasonably incurred costs and reasonably sustained damages by the Seller because of the breach of this warranty.

11. LIMITS OF LIABILITY:

Except for death or personal injury caused by the Seller, and owing to the Seller's unlawful behavior or gross negligence: the full liability of the Seller and of the Seller's Affiliates for all damages, claims and/or so however arising (including simply by way of example, derivative damages or damages resulting from a violation of the law, or in consequence of the performance of the Seller's services by virtue of the Contract), Contract Price and the time-limit of delivery shall be consequently altered, and/or the execution of the Contract suspended or dissolved, as the case may be.

11.2 Except in such measure as otherwise required by current legislation in force, the Seller shall not have any responsibility with regard to the collection, dealing with, recovery or arrangement of the Goods or of any part of them should they be qualified by law as "waste" or of any element of which the Goods or any part of them consist of spare parts. Were the Seller to be bound by current legislation, including legislation on electrical and electronic apparatus waste material, in particular European Directive 2002/96/EC (WEEE) and 2003/108/EC as transposed by Legislative Decree no. 151 dated 25 July 2005, and subsequent amendments in particular Directive 2006/42/EC, transposed in Legislative Decree no. 17/2010, for the disposal of Goods or any part thereof qualified as "waste", the Purchaser, saving prohibitions envisaged by current law, shall pay to the Seller, besides the Contract Price, or the standard cost provided for by the Seller for the disposal of such Goods or if the Seller does not provide such standard cost, the costs incurred by the Seller for the disposal of such Goods (including all costs related to the collection, treatment, recovery and/or arrangement of the Goods or any part thereof).

11.3 The Purchaser's staff, when in the Seller's premises, shall comply with the rules set by the Seller for those premises, and to all reasonable instructions given by the Seller, including, simply by way of example, safety, security and electrostatic discharge rules.

13. OBSERVANCE OF CURRENT LAWS:

The Purchaser agrees that all laws, regulations, orders and requirements as may apply to import and export control and relative sanctions, as amended from time to time, including simply by way of example those of the United States, of the European Union and of the jurisdictions where the Seller and the Purchaser have their registered offices or from where the goods could be supplied, and the requirements for any license, permit, general license or exemptions from licenses related to them shall apply to the hardware, software, services and technology received by the Purchaser, or by the Seller, or by the Seller's Affiliates, or by the Seller's contractors, subcontractors or agents, or by the Seller's distributor or distributor as the case may be. The Purchaser shall be bound by the applicable laws and regulations in branch of such applicable laws, regulations, orders or requirements, or relative license requirements, permits or service exemptions. The Purchaser besides agrees that he will not undertake any activity exposing the Purchaser to criminal penalties in conformity with the laws and regulations of any relevant jurisdiction which prohibits illegal payments, including, simply by way of example, commissions to any government or agency officers, entity or relative political division, to political parties or to officers of political parties or to candidates for public offices, or to any employee of any client or supplier. The Purchaser commits himself to observe every proper legal, ethical or compliance requirement.

14. DEFAULT, BANKRUPTCY, DISINTEGRATION, COMPETENT COURT:

The Seller could consider the Contract entirely or partially, without prejudice to any other right which he may claim, following written notice to the Purchaser, should the Purchaser not comply with any of his obligations in terms of the Contract and does not remedy such default within 30 days from the date of the written notice given by the Seller of being default wherever this is reasonably remediable within such period, or if the default is not reasonably remediable within such period, no action is taken for the purpose of finding a remedy for the said fault or a Bankruptcy results with regard to the Purchaser. "Bankruptcy" with regard to the Purchaser means one of the following cases: there take place a meeting of the Purchaser's creditors, or should there be proposed by or with regard to the Purchaser an understanding or agreement with or for the benefit of his creditors; should any officer in charge, a curator, an administrative curator or suchlike person take possession of all or of a significant part of the Purchaser's goods, or be appointed with regard to any sequestration, executive or other proceeding which would have been imposed or applied (and not closed within seven days), should the Purchaser stop conducting a business activity or is unable to keep up with his debts; should the Purchaser or his administrators or the holder of a qualifying warranty commence an interim or a special liquidation, or request the judicial appointment of a curator; should there be filed a case (which must be closed within 28 days) or the case be declared insolvent and the court of law or the court of insolvency of the Purchaser should there occur with regard to the Purchaser an event similar to any one of those described above in any jurisdiction in which it is set up or resident or in which it carries on its business or has any goods. The Seller shall be entitled to reimbursement by the Purchaser or the Purchaser's representative of all costs and damages incurred by the Seller in consequence of such dissolution, including a reasonable indemnity for general expenses and profit (including simply by way of example the loss of future profits and general expenses). The competent court for the hearing of disputes: **THE NATIONAL AND INTERNATIONAL ARBITRATION CHAMBER OF MILAN**.

15. GENERAL PROVISIONS:

15.1 Notwithstanding of any party with regard to any breach or default or of any right or remedy and no recourse to negotiation shall be interpreted as a content renunciation for exercising one's own rights with regard to any other breach or default or any other right or remedy, so long as such renunciation is made in writing and signed by the renouncing party.

15.2 Should an article, sub-article or other provision of the Contract be invalid owing to the breach of any law or imperative rules, such provision, only within the limits of part thereof as affected by invalidity, shall be considered not to form part of the Contract, without this being able to affect the validity of the remaining part of the Contract.

15.3 The Purchaser could notcede to third parties the rights and obligations assumed in this contract without the Seller's former written consent.

15.4 The Seller is signing this Contract in his own person. The Purchaser commits himself to solely address the Seller in connection with the proper execution of this Contract.

15.5 The Goods and Services supplied in terms of this CONTRACT ARE NOT BEING SOLD OR INTENDED TO BE USED IN ANY NUCLEAR APPLICATION OR SUCH AS IS CONNECTED THERETO (NO DUAL USE). The Purchaser accepts the Goods and Services in conformity with the restriction indicated above, binds himself to communicate such restriction in writing to each and any subsequent purchaser or user and binds himself to defend, indemnify and hold harmless the Seller and the Seller's Affiliates in relation to every and any claim, loss, liability, legal actions, judgments and damages, including accidental and consequential damages, deriving from use of the Goods and Services in any nuclear application or connected therewith, both were the substantial right to be based on an unlawful fact, whether contractual or otherwise, including statements that the Seller's liability is based on negligence or objective liability.

15.6 The Contract shall be interpreted in every regard according to Italian law, with the exclusion, of every effect exercised on that law by the Convention of Vienna of 1980 on International Contracts for the Sale of Goods and, in the widest measure allowed by law, with the exclusion of the effects of the rules of conflict of laws, including the rule of the lex loci contractus. Any dispute arising from the interpretation of the Contract shall be submitted to **THE NATIONAL AND INTERNATIONAL ARBITRATION CHAMBER OF MILAN**.

Any expenses for administrative, registration dues, legal acts and documents will be charged to the purchaser.

15.7 The Article and paragraph titles of the Contract are only indicative and they could not in any way affect the interpretation of their contents.

15.8 All communications and claims related to this Contract shall be done in writing.

In terms of articles 1341 and 1342 of the Civil Code, I state that I have read and do expressly approve of the following articles: Terms and Conditions of Sale Standard; 2 (The Contract), 3 (Offer and Price Validity), 4 (Payment), 5 (Terms of Delivery, Packaging, Risk and Ownership), 6 (Force majeure), 7 (Trials, Inspections and Factory Calibrations), 8 (Documentation and Software), 9 (Defects after Delivery), 10 (Breach of Patents, etc.), 11 (Limits of Liability), 12 (Legislative and Regulatory Provisions), 14 (Default, Bankruptcy and Dissolution), 15 (General Provisions).

PRESENTAZIONE DELLA SOCIETÀ

Un'azienda con solidissime basi e una vasta esperienza, moderna e proiettata nel futuro: questa è



autorotor da oltre quarant'anni è specializzata nella costruzione di tavole rotanti, anelli, manipolatori e macchine basi per i più svariati settori riconducibili all'automazione industriale. L'azienda è composta da oltre cinquanta collaboratori suddivisi in due unità operative distinte: la prima è nella produzione dei componenti, la seconda è dedicata all'assemblaggio e collaudo degli stessi.

L'alta specializzazione e gli elevati standard qualitativi ci permettono di soddisfare qualsiasi richiesta dei clienti con progetti e prodotti "su misura" a seconda delle diverse esigenze.

Progettazione, produzione ed assistenza di componenti meccanici per automazione (tavole rotanti, anelli rotanti, interrоторi ed oscillatori ad assi paralleli ed ortogonali, manipolatori, nastri trasportatori, macchine basi). Lavorazioni meccaniche di precisione a CNC conto terzi (IAF 18, 17)

INTRODUCTION TO OUR COMPANY

A company with very solid and extensive experience, modern and projected into the future: this is



For over forty years **autorotor** has specialized in the construction of rotary tables, rings, manipulators and basic machines for the most varied sectors related to industrial automation. The company is made up of over fifty collaborators divided into two distinct operating units: production of components, components assembly and test. High specialization and high quality standards allow us to satisfy any customer request with "tailor-made" projects and products according to different needs.

Design, production and service of mechanical components for automation (rotary index tables, rotary index rings, square axis and parallel axis interrоторs and oscillators, manipulators, conveyor belts, base machines).

CNC precision machining on behalf of third parties (IAF 18, 17)

1 INTRODUZIONE

1.1 Simbologia impiegata



Le operazioni per la cui esecuzione si richiede personale qualificato o specializzato, onde evitare possibili rischi, sono evidenziate con il simbolo indicato qui a fianco.

Si raccomanda di formare il personale destinato all'uso della macchina base e di verificare che quanto previsto sia compreso ed attuato.

Al fine di salvaguardare la sicurezza dell'utilizzatore e di assicurare il corretto funzionamento del dispositivo, il presente manuale di uso e manutenzione riporta i seguenti messaggi di sicurezza.

Nel caso dei messaggi "**PERICOLO**", "**AVVERTENZA**" e "**ATTENZIONE**", il messaggio di sicurezza è composto da un simbolo (un triangolo contenente un punto esclamativo - vedi tabella sotto) seguito dal testo indicante il livello di rischio e ha lo scopo di mettere in allerta l'utilizzatore circa i potenziali danni personali che possono derivare dall'uso scorretto del dispositivo o dal mancato rispetto delle istruzioni di uso e manutenzione.

Il mancato rispetto di tali messaggi di sicurezza potrebbe causare danni e/o la distruzione, parziale o totale, del prodotto o di altri equipaggiamenti ad esso connessi oppure nuocere alle persone.

Nel caso del messaggio "**AVVISO**", il messaggio di sicurezza composto esclusivamente dal testo (senza alcun simbolo) e non indica propriamente rischi, ma riveste semplicemente una funzione informativa.

1 INTRODUCTION

1.1 Symbols used



This symbol indicates the operations that must be carried out by semiskilled or skilled personnel in order to avoid possible risks.

The personnel in charge of using the equipment must be properly trained, and all the necessary information must be thoroughly understood and carried out.

In order to safeguard the safety of the user and to ensure the correct functioning of the equipment, this use and maintenance manual contains the following safety messages.

As to the "**DANGER**", "**WARNING**" and "**CAUTION**" messages, the safety message is a symbol (a triangle containing an exclamation mark- see table below) followed by the text indicating the risk level. Its purpose is to warn the user of the potential personal damage that may result from an incorrect use of the equipment or from the non-compliance with the use and maintenance instructions. Failure to comply with these safety messages could cause damage and/or the partial or total destruction of the product or other equipment connected to it or harm people.

As to the "**NOTICE**" message, the safety message is just a text (without any symbol) and it does not indicate precisely a risk, it is only for information.

PERICOLO	Indica una situazione di rischio imminente che, se non evitata, causa morte o danno grave (es. amputazioni, gravi ustioni, perdita o deterioramento della vista o dell'udito).	DANGER	Indicates an imminent dangerous situation which, if not avoided, can result in death or serious injury (ex. amputations, severe burns, loss or impairment of vision or hearing).
AVVERTENZA	Indica una situazione di rischio potenziale che, se non evitata, può causare morte o danno grave (es. amputazioni, gravi ustioni, perdita o deterioramento della vista o dell'udito).	WARNING	Indicates a potential hazardous situation which, if not avoided, can result in death or serious injury (ex. amputations, severe burns, loss or impairment of vision or hearing).
ATTENZIONE	Indica una situazione di rischio potenziale che, se non evitata, potrebbe causare danni di minore o modesta entità (es. tagli, graffi, irritazioni).	CAUTION	Indicates a potential hazardous situation which, if not avoided, could result in minor or moderate injury (ex. cuts, scratches, irritations).
AVVISO	Viene utilizzato per pratiche non legate a lesioni fisiche.	NOTICE	It is used to address practices not related to physical injury.

1.2 Informazioni generali

Il presente manuale costituisce parte integrante del prodotto e deve essere conservato dall'utilizzatore in quanto contiene informazioni importanti che riguardano il corretto uso e manutenzione del dispositivo.

Le descrizioni e le illustrazioni contenute nella presente pubblicazione si intendono non impegnative.

Ferme restando le caratteristiche essenziali del tipo di attrezzatura descritta, **autorotor** si riserva il diritto di apportare le eventuali modifiche a parti, dettagli ed accessori, che riterrà opportune per il miglioramento dell'apparecchiatura, o per esigenze di carattere costruttivo o commerciale, in qualunque momento e senza impegnarsi ad aggiornare tempestivamente questa pubblicazione.

AVVISO

TUTTI I DIRITTI SONO RISERVATI AI SENSI DELLA INTERNATIONAL COPYRIGHT CONVENTIONS,

è vietata la riproduzione di qualsiasi parte di questo manuale, in qualsiasi forma,

senza l'esplicito permesso scritto di **autorotor**.

Il contenuto di questo manuale può essere modificato senza preavviso. Ogni cura è stata posta nella raccolta e nella verifica della documentazione contenuta in questo manuale per renderlo quanto più completo e comprensibile. Nulla di quanto contenuto nella presente pubblicazione può essere interpretato come garanzia o condizione espressa o implicita - inclusa, non in via limitativa, la garanzia di idoneità per un particolare scopo. Nulla di quanto contenuto nella presente pubblicazione può inoltre essere interpretato come modifica o asserzione dei termini di qualsivoglia contratto di acquisto.

NOTICE

ALL RIGHTS RESERVED UNDER INTERNATIONAL COPYRIGHT CONVENTIONS,

any reproduction of any part of this manual, in anyway and without the explicit written consent of **autorotor** is forbidden.

The content of this issue may vary without prior notice. The documentation included in this manual has been carefully collected and verified in order to make this guide as complete and comprehensible as possible. Nothing included in this issue can be interpreted as a warranty or condition either expressed or implied - including but not limited to the warranty of fitness for a particular purpose.

Moreover, nothing included in this issue can be interpreted as a modification or assertion of the terms of any purchase contract.

AVVERTENZA

La configurazione originale dell'apparecchiatura non deve essere assolutamente modificata.

Al ricevimento della stessa controllare che:

La fornitura corrisponda alle specifiche dell'ordine.

In caso di non conformità informare immediatamente **autorotor**.

Verificare inoltre che non vi siano stati danneggiamenti durante il trasporto.

1.2 General information

This manual is an integral part of the product and must be kept by the user since it contains important information on the correct use and maintenance of the device.

The descriptions and the pictures contained in this manual are not binding.

Except for the basic features of the equipment described, **autorotor** reserves the right to modify such parts, details and accessories it deems necessary to improve the equipment, either for manufacturing or commercial requirements, at any time and without promptly updating this issue.

WARNING

Do not modify the original configuration of the equipment for any reason whatsoever.

Upon receiving the equipment make sure that:

The supply corresponds to the order specifications.

In case of non-compliance please inform **autorotor** immediately. Also make sure the equipment has not been damaged during transport.

1.3 Riferimenti normativi

1.3 Normative references

<ul style="list-style-type: none"> ● DIRETTIVA 2006/42/CE ● DIRECTIVE 2006/42/EC 	<p>DIRETTIVA MACCHINE E SUE INTEGRAZIONI. MACHINERY DIRECTIVE AND ITS ADDITIONS.</p>
<ul style="list-style-type: none"> ● NORMA UNI EN ISO 12100:2010 ● STANDARD UNI EN ISO 12100:2010 	<p>SICUREZZA DEL MACCHINARIO:</p> <ul style="list-style-type: none"> • Principi generali di progettazione - Valutazione del rischio e riduzione del rischio. <p>SAFETY OF MACHINERY:</p> <ul style="list-style-type: none"> • General principles for design — Risk assessment and risk reduction.
<ul style="list-style-type: none"> ● D.Lgs 81/2008 ● Legislative Decree 81/2008 	<p>TESTO UNICO SULLA SICUREZZA SUL LAVORO. CONSOLIDATED LAW ON SAFETY AT WORK.</p>

2 TRASPORTO

2.1 Avvertenze per il trasporto

Gli imballi vengono eseguiti in base alle dimensioni, al peso, al grado di protezione richiesto, alla sicurezza di sollevamento. Con la metodologia adottata gli imballi garantiscono la stabilità e l'ancoraggio degli elementi contenitivi.

TUTTE LE OPERAZIONI DI MOVIMENTAZIONE DEL DISPOSITIVO DEVONO AVVENIRE NEL RISPETTO DELLE SEGUENTI REGOLE DI BASE:

- La movimentazione sarà effettuata scegliendo un mezzo adeguato all'oggetto da movimentare ed avente una capacità nominale di carico maggiore del peso da sollevare.

AVVERTENZA

- Nell'impiego di mezzi ausiliari, quali funi, catene o cinghie di sollevamento, o nella scelta delle stesse, particolare considerazione dovrà essere fatta sulla loro geometria finale durante il sollevamento e sulla conseguente effettiva capacità di carico.
- La movimentazione deve sempre avvenire con manovre graduali, in modo da evitare strappi, sobbalzi e situazioni di pericolo per persone e cose.
- Occorre attenersi a tutte le normative e disposizioni di legge in materia di prevenzione degli infortuni e sicurezza sul lavoro, vigenti sia in ambito nazionale che locale, che aziendale.
- Si devono individuare le aree idonee da adibire a deposito materiali.

2 TRANSPORT

2.1 Transport warnings

The device is packed according to its size, weight, required level of protection and lifting safety. With the methodology used, the packing guarantees the stability of the elements contained in it.

ALL HANDLING OPERATIONS OF THE DEVICE MUST COMPLY WITH THE FOLLOWING BASIC RULES:

- Handle any object to be moved only by suitable means, with a nominal carrying capacity higher than the weight to be lifted.

WARNING

- When using auxiliary means, such as lifting ropes, chains or belts, choose them carefully taking into account their final geometry during lifting operations, and therefore their real carrying capacity.
- Always handle objects with gradual movements in order to avoid shocks, jerks and dangerous situations for people and property.
- It is necessary to comply with all national, local and company standards and provisions of the law over accident prevention and health and safety at work.
- Clearly define the material storage areas.

2.2 Imballo

Le macchine base e i relativi accessori, in funzione delle dimensioni e al tipo di trasporto, vengono consegnate avvolte da pluriball protettivo oppure in casse di legno.

AVVISO

Al ricevimento della merce, verificare che l'imballo sia integro. Eventuali danni dovuti al trasporto devono essere comunicati immediatamente al corriere.

2.2 Packing

The base machine and its accessories, depending on the size and on the type of transport, are delivered either wrapped in a protective bubble wrap or in wooden crates.

NOTICE

Upon receiving the goods, please make sure that the packing is intact. Any damage due to transport must be reported immediately to the courier.



2.3 Immagazzinamento

Per lo stoccaggio del prodotto e dei relativi accessori, rispettare le seguenti condizioni:

- Conservare il dispositivo in un ambiente chiuso ventilato asciutto, protetto da agenti atmosferici e/o manomissioni accidentali.
- Il dispositivo non deve essere sottoposto ad urti, a vibrazioni, a carichi sovrastanti, ecc.

2.4 Disimballo

Rimuovere il dispositivo dall'imballo e verificare che non presenti danneggiamenti di alcun tipo (graffi, ammaccature, abrasioni, depositi di materiale estraneo). Eventuali danni devono essere immediatamente comunicati a **autor**.

Mantenere il prodotto nell'imballo fino all'installazione.

AVVISO

L'imballo deve essere adeguatamente smaltito e riciclato.



2.3 Storage

To store the product and its accessories, observe the following conditions.

- Keep the device in a dry, ventilated closed place where it is protected from atmospheric agents and/or accidental tampering.
- The device must not be subjected to shocks, vibrations, overlapping loads, etc.

2.4 Unpacking

Remove the device from the packaging and make sure it is not damaged in any way (scratches, dents, abrasions and foreign materials). Any damage must be immediately reported to **autor**. Keep the product in its packaging until it is installed.

NOTICE

The packaging must be properly disposed of and recycled.

2.5 Movimentazione

ATTENZIONE

Non sollevare mai manualmente componenti che superano 25 kg di peso.

Per le loro caratteristiche di dimensioni e peso, le macchine base devono essere sollevati mediante golfari da serrare negli appositi alloggiamenti.

2.5 Handling

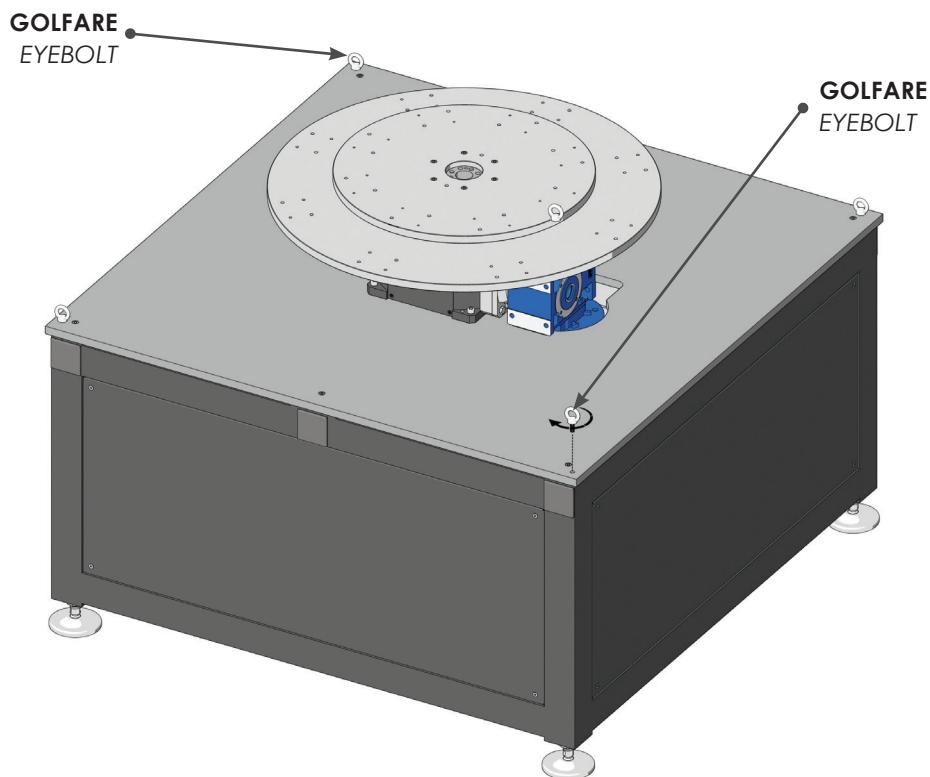
CAUTION



Never manually lift components weighing more than 25 kg.

Due to their size and weight characteristics, the base machines must be lifted using eyebolts which must be secured in the appropriate housings.

BM1



2.6 Sollevamento con funi e catene

Prima del sollevamento fissare i golfari alla piastra fissa al telaio in tubolare, quindi procedere alla movimentazione.

⚠ ATTENZIONE

Non sollevare mai manualmente componenti che superano 25kg di peso.

⚠ ATTENZIONE

Procedere sempre molto lentamente durante la fase di spostamento. Posizionare i ganci di sollevamento solo negli appositi golfari.

⚠ ATTENZIONE

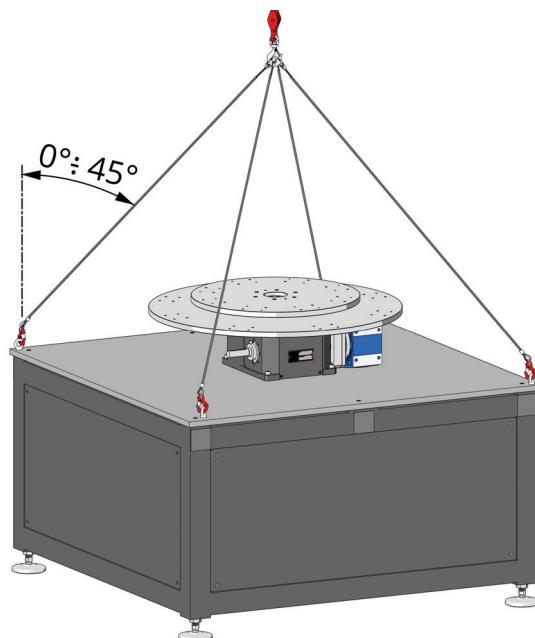
Evitare che il dispositivo durante lo spostamento possa oscillare: muoverlo con cautela e sollevarlo solo il minimo indispensabile da terra.

⚠ ATTENZIONE

Controllare sempre il punto in cui eventualmente dovessero appoggiare le funi o le catene affinché non danneggino parti del dispositivo; se necessario interporre fra queste dei blocchi di polistirolo o di legno tenero.

Esempio di sollevamento

BM1



2.6 Lifting by means of ropes and chains

Before lifting, secure the eyebolts to the plate fixed to the tubular frame, then proceed with the handling.

⚠ CAUTION

Never lift manually components weighing more than 25kg.

⚠ CAUTION

Always proceed very slowly when moving the machine. Place the lifting hook only in the appropriate eyebolts.

⚠ CAUTION

Make sure that the device does not swing when it is moved: move it carefully and lift it only as little as possible from the ground.

⚠ CAUTION

Always check where ropes or chains are placed so that they do not damage parts of the machine; if necessary, place polystyrene or soft wood blocks between them.

Example of lifting

3 DESCRIZIONE DELLA MACCHINA BASE

3.1 Targhetta identificativa

Sulla targhetta viene marcato il modello della tavola o dell'anello rotante montato ed il numero di matricola.

ATTENZIONE

La targhetta non deve essere rimossa per nessun motivo dalla tavola rotante o dall'anello rotante in quanto parte integrante del prodotto.

La rimozione della targhetta fa decadere la garanzia sull'unità.

3 DESCRIPTION OF THE BASE MACHINE

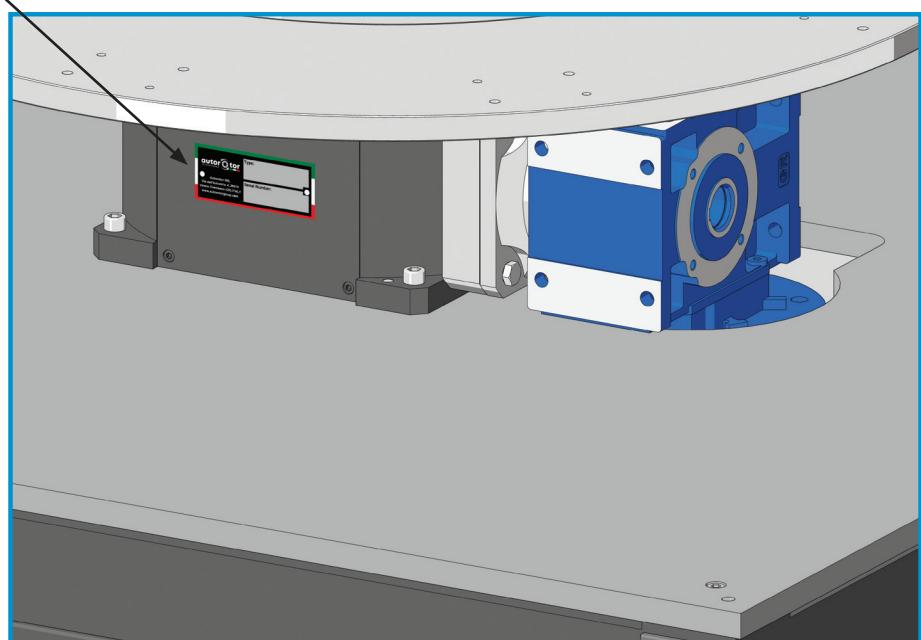
3.1 Identification plate

The plate is marked with the model of the mounted rotary table or ring and the serial number.

CAUTION

The plate must not be removed for any reason from the rotary table as it is an integral part of the product.

Removing the tag plate voids the warranty on the unit.



3.2 Descrizione

La macchina base è un'applicazione destinata all'automazione industriale che può essere integrata con vari tipi di attrezzature: portapezzi, stazioni, ecc. Inoltre ruotando permette il trasferimento da una stazione all'altra con esigenze di precisione di posizionamento e ripetibilità. È costituita da una struttura in tubolare elettrosaldato, una piastra base dove viene posizionata la nostra unità meccanica sulla quale sono fissati un disco fisso e un disco mobile.

Senso di rotazione: Le macchine base, come le nostre unità meccaniche, possono ruotare sia in direzione oraria che in direzione antioraria.

Rumore: Il livello di pressione acustica continuo equivalente ponderato A è inferiore a 80 dB.

Macchina base con Tavola o Anello rotante con disco fisso e disco mobile

Macchina base compatta e robusta, adatta a qualsiasi settore manifatturiero, medico, automotive, alimentare, meccanico, elettromeccanico.

Movimento flessibile

La rotazione del disco tavola guidato dalle nostre tavole ed anelli meccanici, offre la possibilità di avere un movimento a passo meccanico o continuo a seconda delle esigenze.

Precisione

L'assemblaggio dei componenti è garantito dall'alta precisione delle nostre tavole ed anelli meccanici.

Affidabilità

Siamo certi della bontà del nostro prodotto, tutti i componenti sono realizzati da noi, compresi i cuscinetti. Quindi vi offriamo 2 anni di garanzia totale.

AVVISO

Per le caratteristiche tecniche di tutti gli accessori delle macchine base (tavola rotante, riduttori, motori ecc..) fare riferimento ai relativi manuali di uso e manutenzione.

3.2 Description

The base machine is an application designed for industrial automation which can be integrated with various types of equipment: workpiece carriers, stations, etc. Furthermore, by rotating, it allows the transfer from one station to another, ensuring positioning precision and repeatability. It consists of an electro-welded tubular structure, a base plate where our mechanical unit is positioned, on which a fixed and a moving disk are mounted.

Rotation direction: base machines, like our mechanical units, can rotate in either clockwise or counterclockwise directions.

Noise: The A-weighted equivalent continuous sound pressure level is less than 80 dB.

Base machine with rotary table or ring with fixed and moving disk

The base machine is compact and robust and it is suitable for any manufacturing, medical, automotive, food, mechanical and electromechanical sector.

Flexible movement

The disk table rotation, guided by our mechanical plates and rings, provides the option for either mechanical step movement or continuous movement, based on the specific requirements.

Precision

The assembly of the components is ensured by the high precision of our mechanical tables and rings.

Reliability

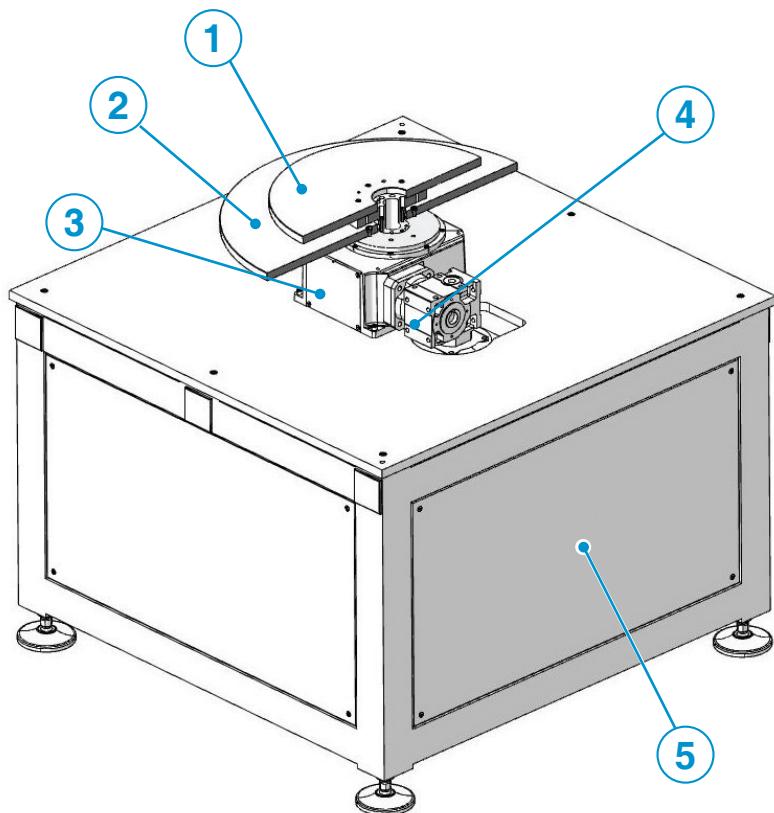
We are confident in the quality of our product, all the components are manufactured by us, including the bearings. Therefore, we offer a full two-year warranty.

NOTICE

For the technical features of all base machines accessories (rotary table, gearboxes, motors, etc.) refer to the related use and maintenance manuals.

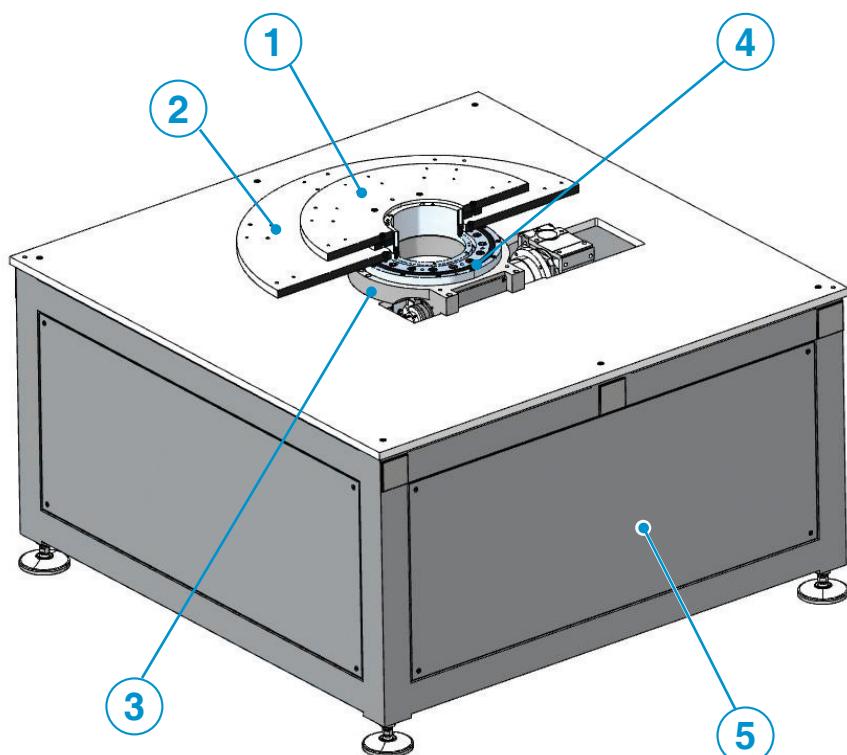
MACCHINA BASE CON TAVOLA ROTANTE BASE MACHINE WITH ROTARY TABLE

- 1** Disco fisso
Fixed disk
- 2** Disco rotante
Rotary disk
- 3** Tavola rotante
Rotary table
- 4** Riduttore
Reducer
- 5** Bancale
Pallet



MACCHINA BASE CON ANELLO ROTANTE BASE MACHINE WITH ROTARY RING

- 1** Disco fisso
Fixed disk
- 2** Disco rotante
Rotary disk
- 3** Anello rotante
Rotary ring
- 4** Riduttore
Reducer
- 5** Bancale
Pallet



3.3 Macchina base a tavola rotante

3.3 Rotary table base machine

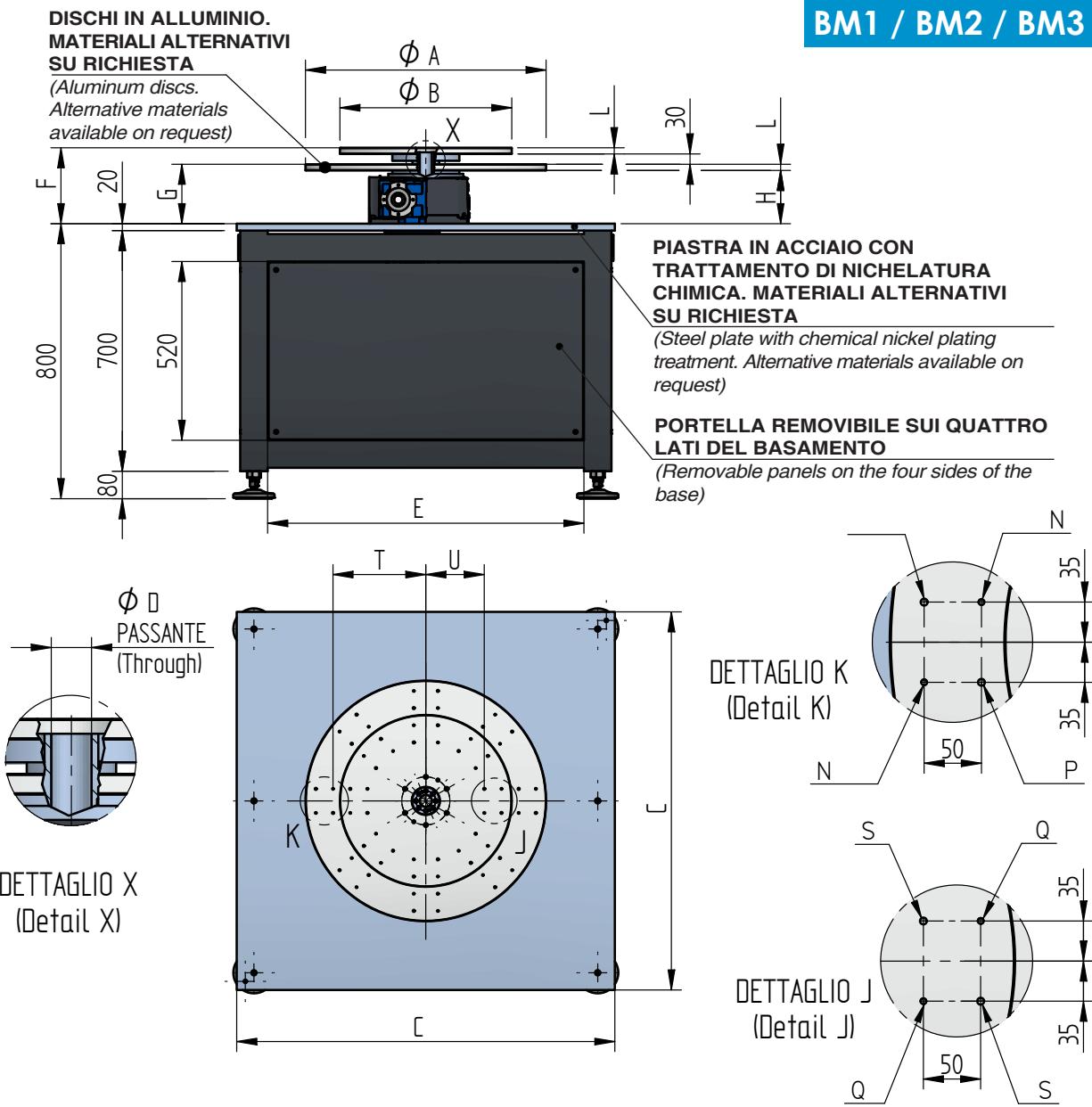


TABELLA FORATURA DI FISSAGGIO STANDARD
(Standard fixing drilling table)

TIPO (TYPE)	N	$\varnothing P$ (H7)	Q	$\varnothing S$ (H7)	T	U
BM1	M6x12	6x15	M6x12	6x15	270	170
BM2	M8x16	8x15	M6x16	8x15	370	220
BM3	M8x16	8x15	M8x16	8x15	470	270

TABELLA DATI E DIMENSIONI STANDARD
(Standard data and table dimensions)

TIPO (TYPE)	TAVOLA E MOTORIZZAZIONE (Table and Motorization)	$\varnothing A$	$\varnothing B$	C	$\varnothing D$	E	F	G	H	L	Peso (kg) (Weight)
BM1	T 25 RV40 PAM71 0,37KW AUT.	700	500	1100	35	920	221	173	155	18	500
BM2	T 35 RV63 PAM90 1,1KW AUT.	900	600	1400	40	1220	265	215	195	20	550
BM3	T 55 RV80 PAM100 3,0KW AUT	1100	700	1600	60	1420	329	277	255	22	1100

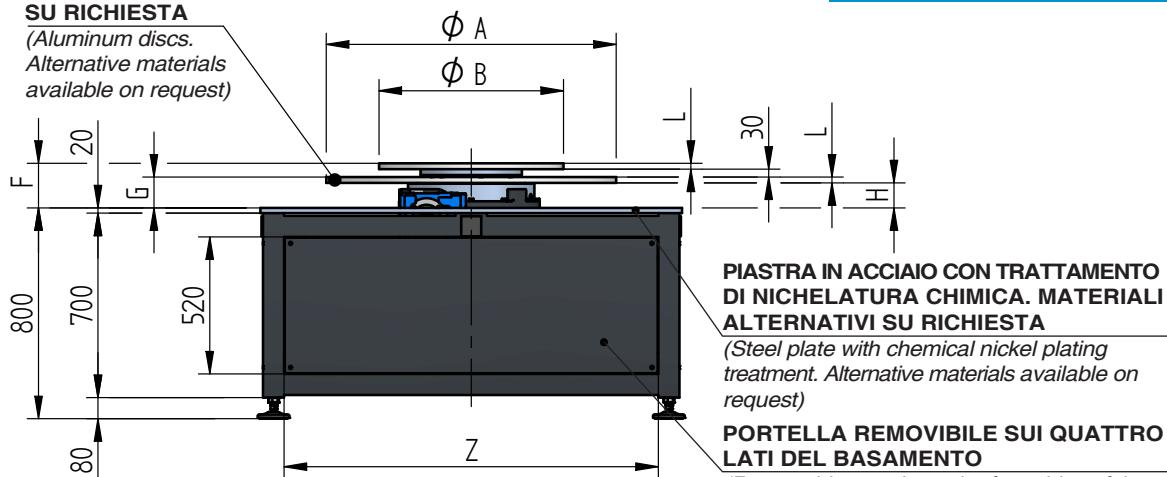
3.4 Macchina base ad anello rotante

3.4 Rotary ring base machine

DISCHI IN ALLUMINIO.
MATERIALI ALTERNATIVI

SU RICHIESTA

(Aluminum discs.
Alternative materials
available on request)



BMR1 / BMR2

PIASTRA IN ACCIAIO CON TRATTAMENTO DI NICHELATURA CHIMICA. MATERIALI ALTERNATIVI SU RICHIESTA

(Steel plate with chemical nickel plating treatment. Alternative materials available on request)

PORTELLA REMOVIBILE SUI QUATTRO LATI DEL BASAMENTO

(Removable panels on the four sides of the base)

DETTAGLIO X
(Detail X)

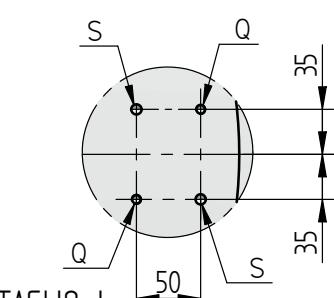
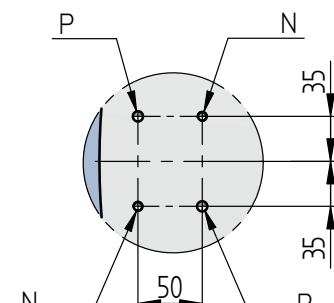
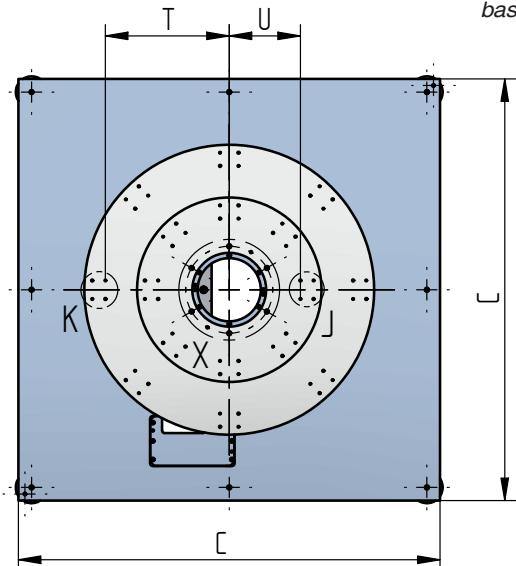
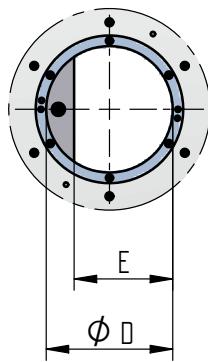


TABELLA FORATURA DI FISSAGGIO STANDARD
(Standard fixing drilling table)

TIPO (TYPE)	N	\varnothing P (H7)	Q	\varnothing S (H7)	T	U
BMR1	M6x12	6x15	M6x12	6x15	370	220
BMR2	M8x16	8x15	M8x16	8x15	470	270

TABELLA DATI E DIMENSIONI STANDARD
(Standard data and table dimensions)

TIPO (TYPE)	TAVOLA E MOTORIZZAZIONE (Table and Motorization)	\varnothing A	\varnothing B	C	\varnothing D	E	F	G	H	L	Z	Peso (kg) (Weight)
BMR1	AR 350 RV50 PAM90 1,1KW AUT.	900	600	1400	175x80	148	133	90	70	20	1220	550
BMR2	AR 510 RV80 PAM100 3,0KW AUT.1100	700	1600	240x90	187	167	115	95	22	1420	1050	

3.5 Uso previsto e non previsto

Le macchine base sono state progettate per la movimentazione di attrezzature (di progetto e responsabilità dell'utilizzatore) aventi valori di massa, velocità, legge di movimento, rigidità del sistema, carico assiale, spinta laterale, momento applicato ecc. entro i limiti previsti dalle specifiche tecniche riportate nel manuale uso e manutenzione delle Tavole rotanti e Anelli rotanti, e di norma verificate da autorotor sulla base dei dati di progetto forniti dall'utente.

Le macchine base sono un dispositivo studiato per essere installato all'interno di una macchina e quindi a scopo di integrazione. Il controllo della macchina opera anche sulle funzioni della macchina base, incluse le relative funzioni di protezione. Le macchine base sono state progettate solo come componente all'interno di una macchina marchiata CE.

L'uso previsto delle macchine base è il trasporto di componenti montati su un portapezzo che devono essere portati da una stazione operatrice ad un'altra.

Qualsiasi altro uso che differisca dall'uso previsto va considerato uso inappropriato e non previsto. In particolare, a titolo esplicativo e non esaustivo, si possono intendere come usi non previsti: utilizzo al di fuori dei limiti operativi consentiti, installazione ed utilizzo in ambienti con condizioni estreme (temperatura, umidità, polvere), utilizzo in ambienti aggressivi.

ATTENZIONE

Utilizz con configurazioni di carico diverse (più gravi) da quelle dichiarate in fase d'ordine possono determinare un funzionamento non ideale e una precoce usura del sistema e possono costituire una condizione anomala di funzionamento anche ai fini della sicurezza del personale.

È da progettare accuratamente (da parte dell'utilizzatore) la sicurezza globale della macchina che incorporerà la macchina base, tenendo conto delle caratteristiche specifiche del dispositivo stesso.

AVVISO

Per il corretto uso di tutti gli accessori della macchina base (tavola rotante, riduttore, motore, sensori, inverter, azionamento, ecc.) fare riferimento ai relativi manuali di uso e manutenzione.

3.5 Intended and unintended use

Base machines have been designed for the handling of pieces of equipment (design and responsibility of the user) with values of mass, speed, motion law, system rigidity, axial load, lateral thrust, applied moment, etc. within the limits set by the technical specifications indicated in the use and maintenance manual of the rotary tables and rings, and normally verified by autorotor based on the project data provided by the user.

Base machines are devices conceived to be installed within a machine, thus for integration purposes. The machine control also operates on the functions of the base machine, including its related protection functions. Base machines were designed solely as components within a CE-marked machine.

The intended use of base machines is to transport components mounted on a workpiece holder, which have to be moved from one workstation to another.

Any use that differs from the intended one should be considered inappropriate and unintended. In particular, for explanatory purposes only, the following can be considered as unintended uses: use beyond the permitted operational limits, installation and use in environments with extreme conditions (temperature, humidity, dust) and use in aggressive environments.

CAUTION

Using configurations with load conditions that are different (heavier) than those declared during the order phase can lead to sub-optimal performance and premature wear of the system and may create an anomalous operating condition, which could also affect personnel safety.

The overall safety of the machine that will incorporate the base machine must be carefully designed (by the user), taking into account the specific features of the device itself.

NOTICE

For the correct use of all base machines accessorized (rotary table, gearboxes, motors, sensors, inverters, driver, etc.) refer to the related use and maintenance manuals.

4 INSTALLAZIONE

4.1 Verifica del prodotto acquistato

Prima dell'utilizzo della macchina base, verificare che la stessa non abbia subito danneggiamenti dovuti al trasporto o alle condizioni di conservazione.

Verificare inoltre che tutti gli accessori ordinati e tutti i componenti forniti di serie siano contenuti nell'imballo. In caso di danneggiamento, notificare il reclamo allo spedizioniere ed avvisare il fabbricante.

4.2 Avvertenze generali

Si raccomanda di far eseguire l'installazione a personale qualificato, e di seguire le indicazioni riportate di seguito.

ATTENZIONE

Non sollevare mai manualmente componenti che superano 25 kg di peso.



Le macchine base devono essere sollevate e movimentate attraverso gli appositi golfari (fornibili su richiesta).

4 INSTALLATION

4.1 Check of the purchased product

Before using the base machine, make sure it has not been damaged during transport or storage.

Also check if all ordered options and the standard equipment are inside the package. In case of damage, inform immediately the forwarding agent and the manufacturer.

4.2 General warning

The installation should be carried out by qualified personnel and the following instructions should be followed.

CAUTION

Never lift manually components weighing more than 25 kg.



Base machines must be lifted and moved by means of appropriate eyebolts (supplied on request).

ATTENZIONE

Si raccomanda di impiegare indumenti protettivi come ad esempio: tute, guanti, elmetto, occhiali di protezione e scarpe antinfortunistiche.

CAUTION

It is recommended to use protective equipment such as: overalls, gloves, helmet, goggles and safety shoes.



autorotor non risponde di danni derivanti a persone, cose o animali causati da un'installazione non corretta, inoltre ogni responsabilità del costruttore decade in caso non vengano rispettate le condizioni riportate di seguito.

È responsabilità dell'utilizzatore:

- Stabilire misure appropriate di sicurezza e tutela della salute.
- Costruire e dimensionare il sistema su cui il dispositivo è installato in maniera tale da resistere a tutti i carichi cui sarà sottoposto, incluse le forze di reazione.
- **autorotor** non potrà essere ritenuta responsabile per alcun danno causato da un'inadeguata progettazione e/o dimensionamento del sistema né da una errata installazione né da altri possibili fattori che sono al di fuori del controllo di **autorotor**.
- Il dispositivo non deve essere in alcun modo rilavorato o modificato, salvo approvazione scritta da parte di **autorotor**.

autorotor is not liable for damages to people, properties or animals caused by improper installation. Moreover, any liability of the manufacturer shall forfeit if the following conditions are not observed.

It is the user's responsibility to:

- Establish appropriate safety and health protection measures.
- Build and size the system on which the device is installed in a way that ensures resistance to all the loads it will be exposed to, including the reaction forces.
- **autorotor** may not be held responsible for any damage caused by inadequate planning and/or dimensioning of the system, or by inadequate installation of the system itself, or by other possible factors that are not within **autorotor** sphere of influence.
- The device must not be reprocessed or modified in any way, unless written approval is provided by **autorotor**.

AVVISO

Per il corretto uso di tutti gli accessori della macchina base (tavola rotante, riduttore, motore, sensori, inverter, azionamento, ecc.) fare riferimento ai relativi manuali di uso e manutenzione.



PERICOLO
Il sistema potrà essere avviato solo quando TUTTI i requisiti essenziali di sicurezza richiesti dalla Direttiva 2006/42/CE saranno soddisfatti.

NOTICE

For the correct use of all base machines accessories (rotary table, gearboxes, motors, sensors, inverters, driver, etc.) refer to the related use and maintenance manuals.



DANGER
The system can only be started when ALL the essential safety requirements required by Directive 2006/42/EC are satisfied.

4.3 Posizionamento

PERICOLO

La macchina base deve essere opportunamente ancorata e supportata, in relazione al peso proprio e ai carichi applicati.

Se necessario prevedere la sostituzione dei piedini standard forniti da **autorotor** con l'uso di piedini speciali per avere la possibilità di essere ancorati a terra (a carico dell'utilizzatore finale).



4.3 Positioning

DANGER

The base machine must be properly anchored and supported, in relation to its own weight and the applied loads.

If necessary, replace the standard feet supplied by **autorotor** with special feet to be anchored to the ground (at the user's expense).



4.4 Installazione portapezzi

La progettazione e il dimensionamento dei portapezzi è di competenza dell'utilizzatore. Essi vengono considerati da **autorotor** nella verifica delle prestazioni della macchina base, sulla base di dimensioni e masse comunicate in fase di studio dall'utilizzatore.

In particolare occorre tenere in considerazione:

- Massa di pezzo e portapezzo e loro numero sulla macchina base;
- Posizione del baricentro di pezzo e portapezzo rispetto al centro di rotazione dell'unità meccanica installata;
- Tempo di indexaggio;

Essi devono corrispondere, e comunque non superare, i dati comunicati ad **autorotor** in fase di dimensionamento.

Il fissaggio dei portapezzi sui dischi della macchina base avviene tramite i filetti già presenti o sui dischi vergini nel caso il cliente preferisca eseguire personalmente la realizzazione.

Sono presenti anche dei fori spina in tolleranza H7 per una maggior precisione di posizionamento del portapezzi.



4.4 Workpiece holder installation



The design and sizing of workpiece holders fall under the user's competence. They are taken into account by **autorotor** during the verification of the performance of the base machine, considering dimensions and masses provided by the user during the design phase.

In particular, the following must be taken into account:

- Workpiece and workpiece holder mass and their number on the base machine;
- Position of the center of gravity of the workpiece and workpiece holder in relation to the rotation center of the installed mechanical unit;
- Indexing time;

They must match and, in any case, not exceed the data provided to **autorotor** during the sizing phase.

The workpiece holders are fastened to the base machine disks through threads that are already present or on blank disks if the customer prefers to carry out the manufacturing process by themselves. Additionally, there are also pin holes with tolerance H7 for greater precision in positioning the workpiece holder.

PERICOLO

I portapezzi devono essere progettati e costruiti compatibilmente con le caratteristiche tecniche della macchina base ed essere conformi ai requisiti minimi di sicurezza e salute della direttiva macchine.

DANGER

Workpiece holders must be designed and manufactured according to the technical features of the base machine and they must comply with the minimum safety and health requirements of the Machinery Directive.

4.5 Collegamenti elettrici



⚠ PERICOLO

L'allacciamento elettrico deve essere eseguito soltanto da elettricisti abilitati, secondo le norme antinfortunistiche vigenti.

⚠ PERICOLO

Prima di procedere ai lavori sulle apparecchiature elettriche occorre assicurarsi che tutti i conduttori, le parti di collegamento e i morsetti siano fuori tensione.

⚠ ATTENZIONE

Installare a monte del quadro elettrico un dispositivo magnetotermico differenziale e verificare che il circuito di messa a terra sia efficace.

La sezione minima dei fili di collegamento deve essere stabilita dall'operatore abilitato all'installazione.

Per quanto riguarda i collegamenti elettrici di eventuali apparecchiature, accessorie alla macchina base, fare riferimento ai relativi manuali d'installazione.

autor fornisce i manuali di installazione e uso dei dispositivi che sono eventualmente contemplati nella fornitura e installati sulla macchina base. Si consiglia di far riferimento a tali documenti per tutte le informazioni di tipo elettrico.

4.5 Electric connections



⚠ DANGER

The electric connections must be carried out only by qualified electricians, in compliance with the regulations in force concerning accident prevention.

⚠ DANGER

Before carrying out any operation on the electrical equipment make sure all wires, connection parts and terminals have been powered-off.

⚠ CAUTION

Install a differential magnetothermic breaker before the electric panel, and make sure grounding is effective.

The minimum section of the connection wires must be established by the operator authorized for the installation.

As for the electrical connections of any equipment accessory to the base machine, refer to the related installation manuals.

autor supplies the installation and user manuals for devices that are potentially included in the supply and installed on the base machine. It is recommended to refer to these documents for all electrical information.

4.6 Accensione e messa in servizio

Prima della messa in servizio del dispositivo devono essere effettuati:

- Pulizia accurata, asportando la polvere e le sostanze estranee o imbrattanti.
- Eliminazione dell'antiruggine dalle parti non vernicate.
- Verifica del corretto settaggio ed eventuale programmazione dell'attuatore che movimenta la macchina base.
- Verifica che la movimentazione della macchina base sia libera da ostacoli e interferenze con altre parti della macchina incorporante.
- Verifica del corretto funzionamento di tutti i sistemi di protezione e di sicurezza della macchina incorporante.

4.6 Powering on and commissioning

Before putting the equipment into service, the following operations must be carried out:

- Thorough cleaning, removing dust and foreign or soiling substances.
- Elimination of anti-rust from unpainted parts.
- Verification of the correct setting and, if necessary, programming of the actuator that moves the base machine.
- Verification of the free movement of the base machine from obstacles and interference with other parts of the incorporating machine.
- Verification of the proper functioning of all protection and safety systems of the incorporating machine.

5 NORME DI SICUREZZA PER L'USO

5.1 Rischi residui

Nonostante siano state adottate misure di protezione integrate nella progettazione, permangono alcuni rischi che possono essere eliminati a seguito dell'installazione della macchina base nella macchina in cui viene incorporata.



Rischio impigliamento/ trascinamento in prossimità dei dischi e relativi portapezzi.



Rischio schiacciamento in prossimità dell'albero lato opposto motore, in caso di utilizzo di camma con microinterruttore di fase.

⚠ PERICOLO

La macchina base deve essere installata in una macchina su cui devono essere predisposte, a cura dell'utilizzatore, adeguate protezioni e/o sistemi di sicurezza scelti opportunamente in fase di analisi del rischio del dispositivo.

⚠ PERICOLO

I portapezzi installati devono rispettare le caratteristiche di forza e di velocità della macchina base.

5 SAFETY RULES FOR USE

5.1 Residual risks

Although protective measures integrated into the design have been adopted, some risks remain that can be eliminated after the installation of the base machine into the machine it is incorporated into.



Risk of entanglement/ dragging near disks and their respective workpiece holders.



Risk of crushing near the shaft on the opposite side of the motor, in case of using a cam with a set point microswitch.

⚠ DANGER

The base machine must be installed on a unit that has been properly equipped by the user with appropriate protective measures and/or safety systems, properly selected during the risk analysis phase of the device.

⚠ DANGER

The installed workpiece holders must comply with the strength and speed characteristics of the base machine.

6 MANUTENZIONE

6.1 Norme di sicurezza durante la manutenzione

Le principali avvertenze da adottare in occasione di interventi manutentivi sull'impianto sono:

- Nessun lavoro può essere avviato senza un permesso scritto del responsabile della manutenzione.
- Determinare per ciascun tipo di intervento di manutenzione opportune regole di sicurezza e procedure che ogni addetto alla manutenzione deve conoscere.
- Prima di operare sulla macchina base, assicurarsi che quest'ultima sia in condizioni di sicurezza.
- Alla fine di un intervento di manutenzione, rimuovere tutti gli attrezzi e gli stracci utilizzati e rimuovere al meglio qualunque accumulo di grasso o olio: possono esserci rischi di incendio.
- Per la manutenzione degli impianti o di parti meccaniche che possono richiedere un totale o parziale smontaggio, devono essere tenute in considerazione le seguenti precauzioni e procedure:
 - chiudere in posizione di sicurezza l'interruttore generale della macchina.
 - evitare di introdurre le mani in mezzo alle parti rotanti se non prevista una chiusura meccanica di tali componenti.
- Si consiglia di conservare i parametri operativi dell'impianto per i casi di malfunzionamento o di emergenza.
- Prima di eseguire una qualsiasi operazione di manutenzione necessario escludere dalla macchina base l'alimentazione elettrica onde scongiurare il pericolo di possibili inserimenti accidentali che potrebbero danneggiare sia gli operatori che gli strumenti utilizzati.
- Apporre sulla macchina la dicitura: "ATTENZIONE MANUTENZIONE IN CORSO".



6 MAINTENANCE

6.1 Safety rules during maintenance

The main precautions to adopt during maintenance operations on the line are:

- No work can be started without the written authorization of the person in charge of maintenance.
- We recommend establishing some safety rules and procedures for each type of maintenance operations that must be followed by every maintenance man.
- Before operating on the base machine, make sure it is in safety conditions.
- At the end of a maintenance operation, remove all the tools and the cloths used and eliminate any grease or oil accumulation.
- The following precautions and procedures should be taken into account for the maintenance of systems or mechanical parts that may require total or partial disassembly:
 - close the main switch of the machine in safety position;
 - do not put hands between moving parts if they are not provided with a mechanical locking system.
- It is advisable to save the machine functioning parameters, to be used in case of malfunctioning or emergency situations.
- Before carrying out any maintenance operation, disconnect the base machine from the electrical supply in order to avoid the risk of accidental enablings that could endanger both the operators and the systems.
- Apply the following message on the machine: "WARNING: ONGOING MAINTENANCE".



- Non indossare anelli, orologi, catenine, braccialetti ecc. durante le operazioni di manutenzione.
- Non utilizzare fiamme libere, punte o spilli per la pulizia.
- Non fumare.
- Do not wear rings, watches, chains, bracelets, etc. during maintenance operations.
- Do not use flames, sharp objects or pins for cleaning operations.
- Do not smoke.

Il personale deve essere provvisto dei mezzi di protezione individuali comunemente in uso per operazioni analoghe e seguire le procedure di sicurezza prescritte nel capitolo seguente.

The personnel must be equipped with the individual safety devices normally used for similar operations, and must comply with the safety procedures described in the next chapter.



6.2 Manutenzione ordinaria

Grazie agli elevati standard di progettazione e ai materiali utilizzati nella costruzione della macchina base è stato possibile eliminare qualsiasi intervento di manutenzione programmata.

Ciononostante, raccomandiamo di eseguire con frequenza settimanale un controllo visivo e acustico della trasmissione (tavola/anello/riduttore/motore), volto ad identificare prima possibile qualsiasi malfunzionamento, anomalia o usura precoce possa esserci.

6.2 Ordinary maintenance

Thanks to the high design standards and the materials used for manufacturing the base machine, it has been possible to eliminate any scheduled maintenance interventions.

Nevertheless, we recommend per a weekly visual and auditory inspection of the transmission (table/ring/gearbox/motor) aimed at identifying as soon as possible any malfunctions, anomalies or premature wear that may occur.

6.3 Lubrificazione

Non sono richiesti rabbocchi e sostituzioni del lubrificante. Anche gli accessori (tavole rotanti, riduttori) sono adeguatamente lubrificati quando vengono forniti montati sulle unità.

Per la modalità di manutenzione degli accessori (tipologia del lubrificante, quantità, periodicità di verifica e/o sostituzione, ecc.), riferirsi alla documentazione specifica fornita con l'unità.

6.4 Guasti e anomalie

Per l'individuazione di eventuali guasti e/o anomalie fare riferimento alla sezione "Guasti e anomalie" dei manuali uso e manutenzione delle Tavole rotanti serie 5 e degli anelli rotanti.

6.5 Ricambi

Al fine di individuare per ciascun modello di prodotto i relativi componenti far riferimento alle tavole in esplosivo allegate al presente manuale.

Al momento dell'ordine specificare il tipo di unità e serial number (vedi targa di identificazione) e il codice del particolare.

6.3 Lubrication

Lubricant top-ups and replacements are not required. Accessories (rotary tables, reducers) are also adequately lubricated when they are supplied mounted on the units.

For the maintenance of accessories (type of lubricant, quantity, verification periodicity and/or substitution), refer to the specific documentation.

6.4 Faults and anomalies

Refer to the "Faults and anomalies" section of the use and maintenance manuals for series 5 rotary tables and rings to identify possible faults and/or anomalies.

6.5 Spare parts

In order to identify the related components for each product model, refer to the exploded diagrams attached to this manual.

When ordering, specify the type of unit and serial number (see identification plate) and the part code.

6.6 Revisione completa

La revisione completa viene eseguita presso lo stabilimento **autorotor**; contattare il servizio post vendita.

6.6 Complete overhaul

The complete overhaul is performed at the facility; contact the after-sales **autorotor** service.

CENTRO DI ASSISTENZA CUSTOMER CARE CENTRE



Via dell'Industria, 4, 26010 Vaiano Cremasco (CR) ITALY

Tel.: +39 0373 278505 – fax.: +39 0373 278065

E-mail: autorotor@autorotorgroup.com - web: <http://www.autorotorgroup.com>

7 SMALTIMENTO

L'eventuale dismissione al termine del ciclo di vita della macchina base o a seguito della sua rottura deve essere eseguita secondo le normative vigenti nel Paese di utilizzo.

Prima di iniziare lo smontaggio e la dismissione è necessario predisporre lo spazio sufficiente a consentire al personale autorizzato di operare in condizioni di sicurezza.

Se necessario osservare le norme a salvaguardia dell'ambiente e quelle che presiedono al recupero dei materiali riciclabili prevedendo innanzitutto lo svuotamento dei fluidi lubrificanti e la pulizia generale dei vari elementi e successivamente alla separazione dei pezzi che costituiscono l'apparecchiatura. Dopo aver smontato la macchina base occorre separare i vari materiali in accordo con quanto prescrive la normativa del Paese in cui l'apparecchiatura deve essere eliminata.

Le parti da smaltire vanno conferite a società specializzate munite di regolare autorizzazione al trasporto ed allo smaltimento.

7 DISPOSAL

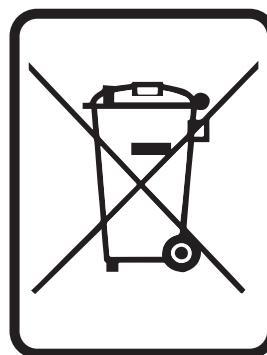
Any disposal at the end of the base machine life or after its breaking must be carried out according to the national regulations in force.

Before starting disassembly and disposal, it is necessary to provide sufficient space in order to allow authorized personnel to operate in safe conditions.

If the base machine must be put out of service and dismantled, it is necessary to follow the rules to safeguard the environment and those relating to the recovery of the recyclable materials, emptying the lubricating fluids, cleaning the components and separating the parts that make up the equipment.

After the base machine has been dismantled, separate the different materials according to the laws in force in the country where the equipment has to be dismantled.

The disposal of the components should be carried out by specialised companies with regular transport and disposal permits.



8 COMPONENTI MACCHINE BASE

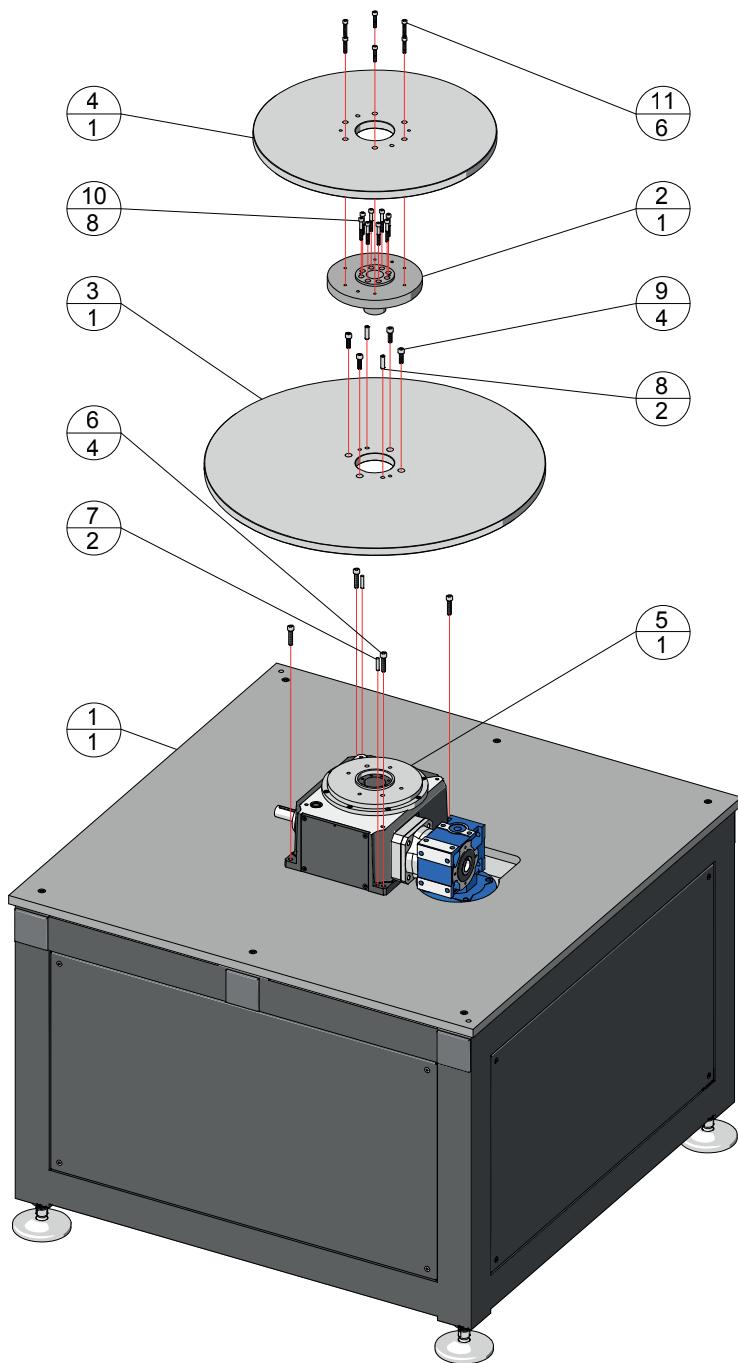
8 BASE MACHINE COMPONENTS

8.1	BM1	35
8.2	BM2	36
8.3	BM3	37
8.4	BMR1	38
8.5	BMR2	39



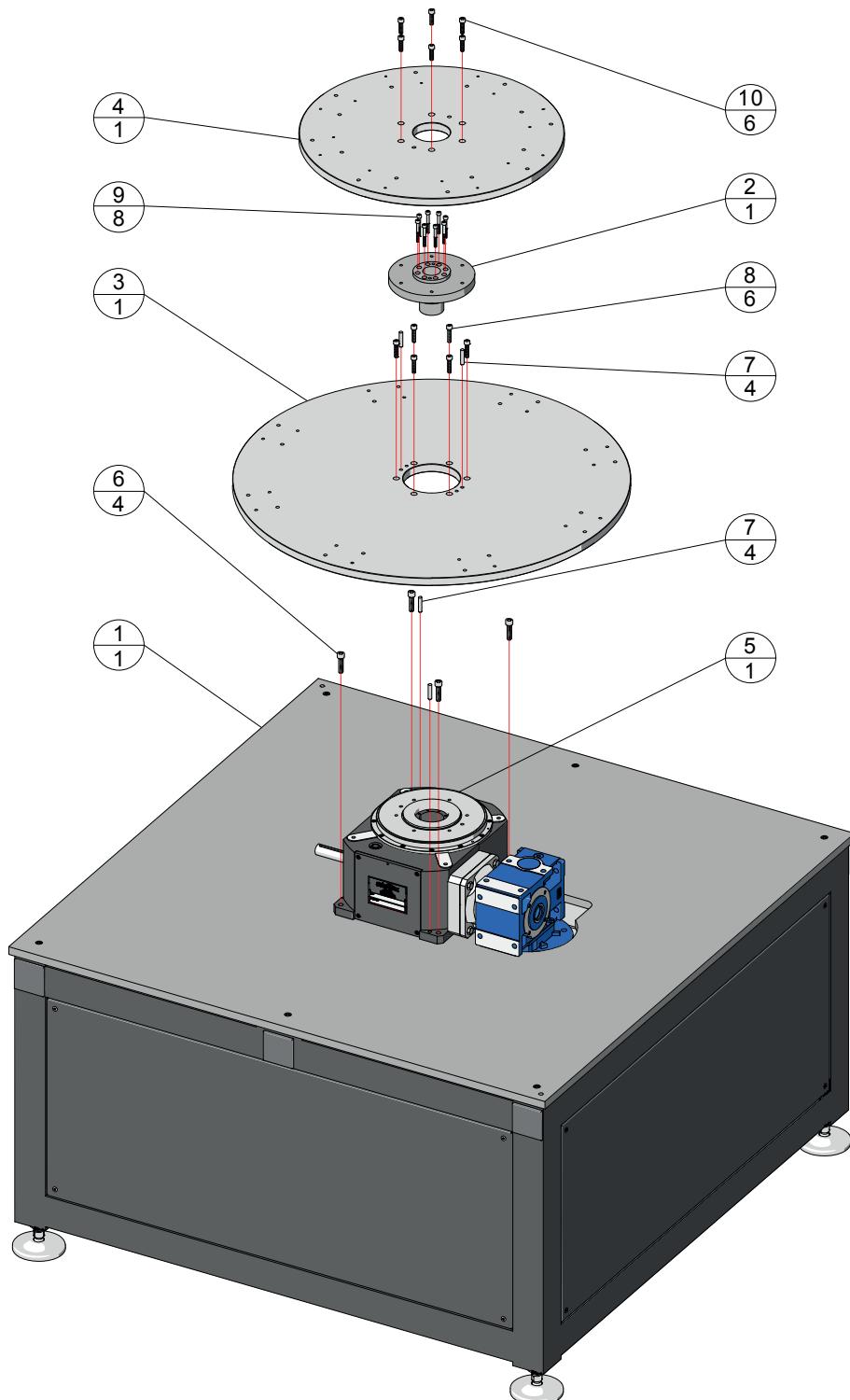
8.1 BM1

POSIZ. POS.	QUANTITÀ QUANTITY	DESCRIZIONE	DESCRIPTION
1	1	BANCALE IN TUBOLARE MACCHINA BASE T 25	T 25 BASE MACHINE TUBULAR PALLET
2	1	SUPPORTO T25	T 25 SUPPORT
3	1	DISCO MOBILE T25	T 25 MOVING DISK
4	1	DISCO FISSO T25	T 25 FIXED DISK
5	1	T25 RV40 + PAM71 AUT.	T25 RV40 + PAM71 AUT.
6	4	VITE TCEI M08x035 5931 8.8	SHC SCREW M08x035 5931 8.8
7	2	SPINA CIL 06x030-A 8734	CYL. PIN 06x030-A 8734
8	2	SPINA CIL 08x030-A 8735	CYL. PIN 06x030-A 8735
9	4	VITE TCEI M8x25 UNI5931	SHC SCREW M8x25 UNI5931
10	8	VITE TCEI M6x45 UNI5931	SHC SCREW M6x45 UNI5931
11	6	VITE TCEI M6x30 UNI5931	SHC SCREW M6x30 UNI5931


8.1 BM1

8.2 BM2

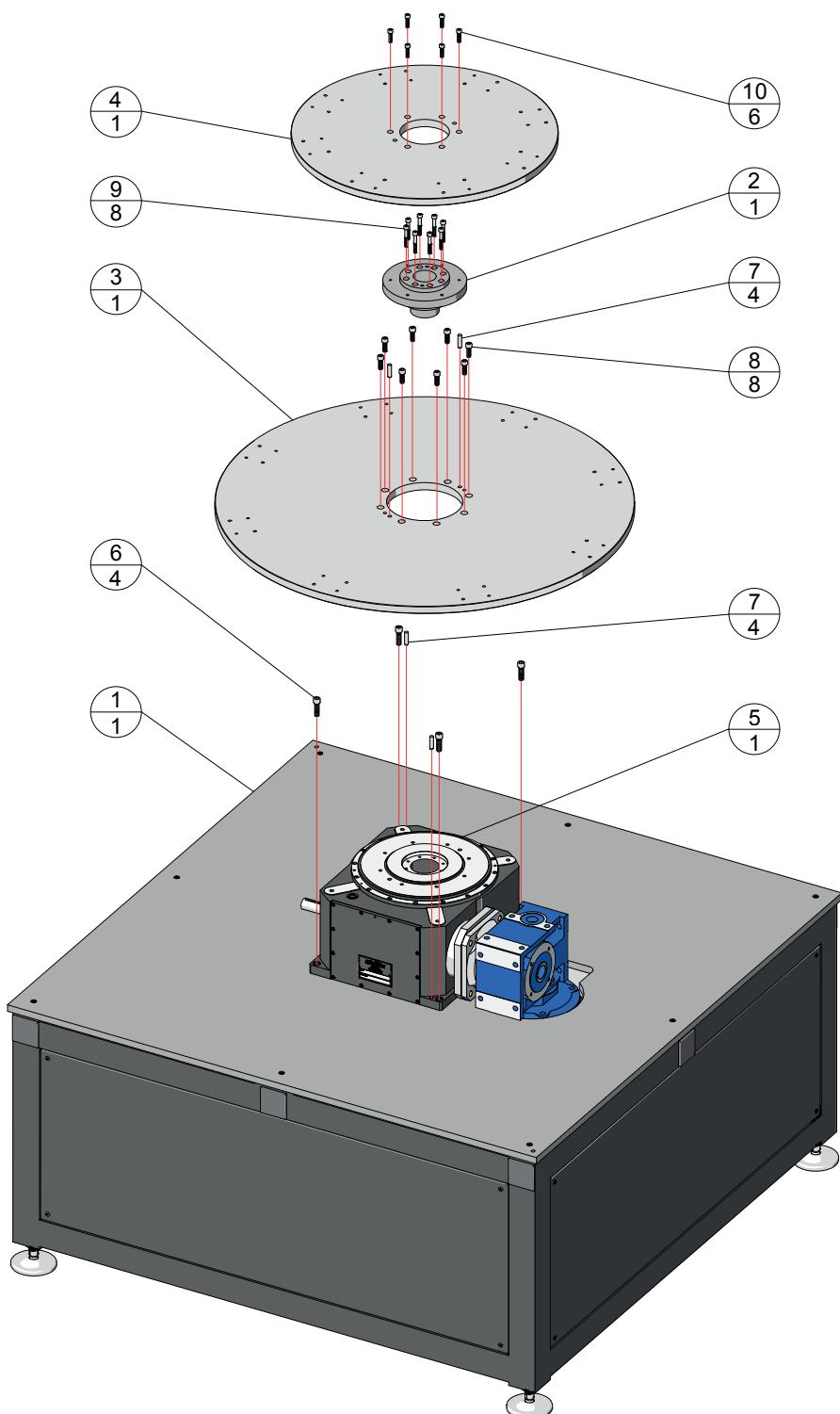
POSIZ. POS.	QUANTITÀ QUANTITY	DESCRIZIONE	DESCRIPTION
1	1	BANCALE IN TUBOLARE MACCHINA BASE T 35	T 35 BASE MACHINE TUBULAR PALLET
2	1	SUPPORTO T35	T 35 SUPPORT
3	1	DISCO MOBILE T35	T 35 MOVING DISK
4	1	DISCO FISSO T35	T 35 FIXED DISK
5	1	T35 RV63 + PAM90 AUT.	T35 RV63 + PAM90 AUT.
6	4	VITE TCEI M10x040 5931 8.8	SHC SCREW M10x040 5931 8.8
7	4	SPINA CIL 08x040-A 8734	CYL. PIN 08x040-A 8734
8	6	VITE TCEI M08x035 5931 8.8	SHC SCREW M08x035 5931 8.8
9	8	VITE TCEI M6x50 UNI5931	SHC SCREW M6x50 UNI5931
10	6	VITE TCEI M08x030 5931 8.8	SHC SCREW M08x030 5931 8.8



8.2 BM2

8.3 BM3

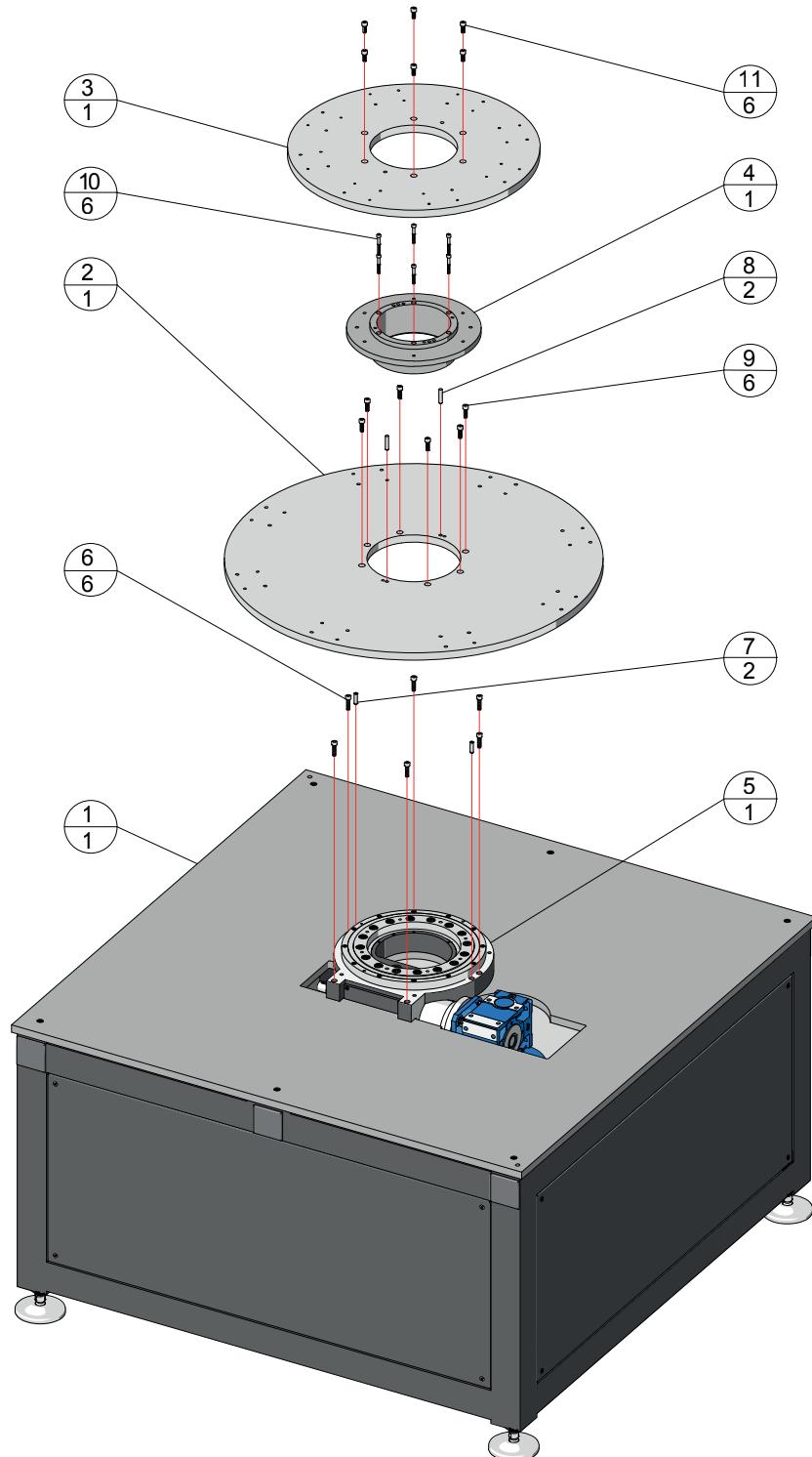
POSIZ. POS.	QUANTITÀ QUANTITY	DESCRIZIONE	DESCRIPTION
1	1	BANCALE IN TUBOLARE MACCHINA BASE T 55	T 55 BASE MACHINE TUBULAR PALLET
2	1	SUPPORTO T55	T 55 SUPPORT
3	1	DISCO MOBILE T55	T 55 MOVING DISK
4	1	DISCO FISSO T55	T 55 FIXED DISK
5	1	T 55 RV80 + PAM100 AUT.	T 55 RV80 + PAM100 AUT.
6	4	VITE TCEI M12x40 UNI5931	SHC SCREW M12x40 UNI5931
7	4	SPINA CIL 10x040-A 8734	CYL. PIN 10x040-A 8734
8	8	VITE TCEI M10x30 UNI5931	SHC SCREW M10x30 UNI5931
9	8	VITE TCEI M8x55 UNI5931	SHC SCREW M8x55 UNI5931
10	6	VITE TCEI M08x030 5931 8.8	SHC SCREW M08x030 5931 8.8



8.3 BM3

8.4 BMR1

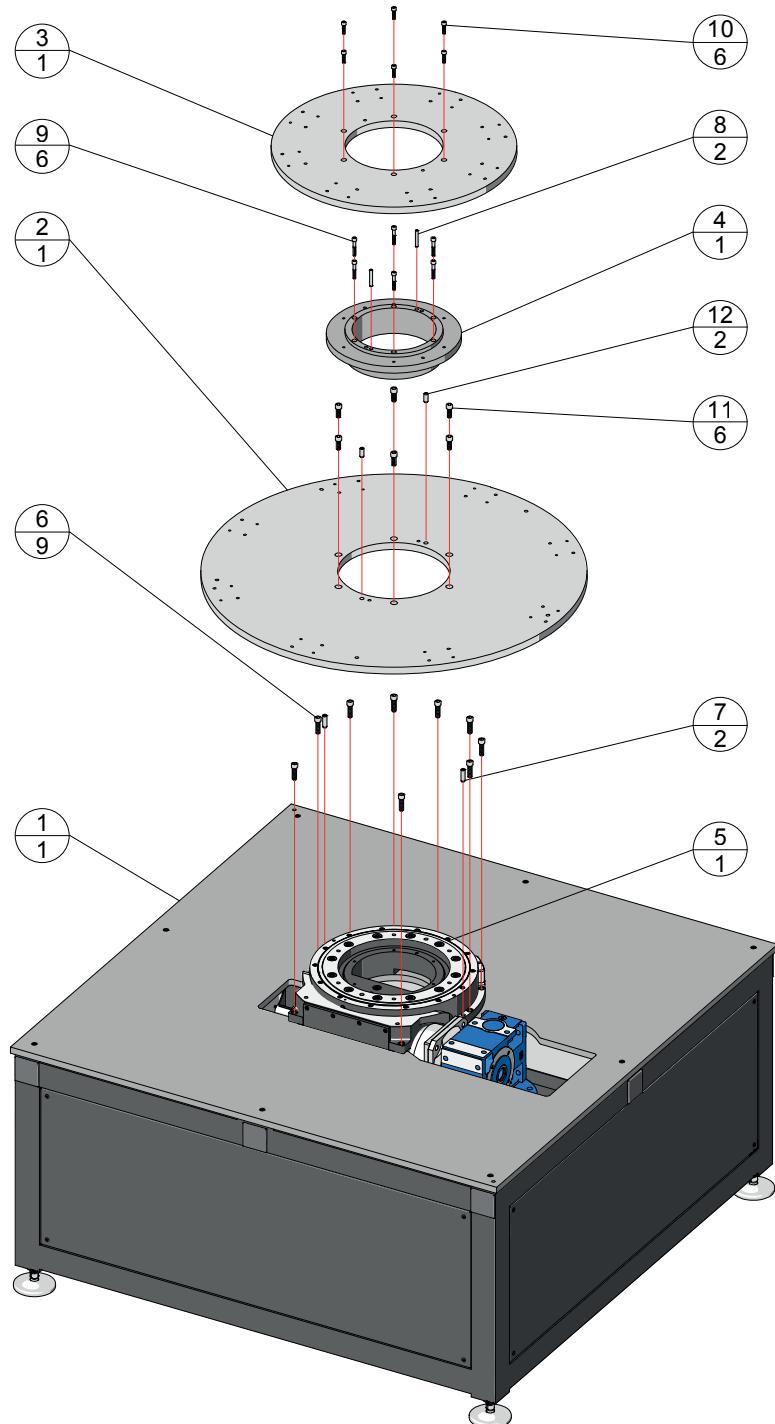
POSIZ. POS.	QUANTITÀ QUANTITY	DESCRIZIONE	DESCRIPTION
1	1	BANCALE IN TUBOLARE MACCHINA BASE AR 350	AR 350 BASE MACHINE TUBULAR PALLET
2	1	DISCO MOBILE AR 350	AR 350 MOVING DISK
3	1	DISCO FISSO AR 350	AR 350 FIXED DISK
4	1	SUPPORTO AR 350	AR 350 SUPPORT
5	1	AR 350 MRV50 + PAM90 AUT.	AR 350 MRV50 + PAM90 AUT.
6	6	VITE TCEI M08x030 5931 8.8	SHC SCREW M08x030 5931 8.8
7	2	SPINA CIL 08x030-A 8735	CYL. PIN 08x030-A 8735
8	2	SPINA CIL 08x040-A 8734	CYL. PIN 08x040-A 8734
9	6	VITE TCEI M8x25 UNI5931	SHC SCREW M8x25 UNI5931
10	6	VITE TCEI M6x45 UNI5931	SHC SCREW M6x45 UNI5931
11	6	VITE TCEI M8x20 UNI5931	SHC SCREW M8x20 UNI5931



8.4 BMR1

8.5 BMR2

POSIZ. POS.	QUANTITÀ QUANTITY	DESCRIZIONE	DESCRIPTION
1	1	BANCHE IN TUBOLARE MACCHINA BASE AR 510	AR 510 BASE MACHINE TUBULAR PALLET
2	1	DISCO MOBILE AR 510	AR 510 MOVING DISK
3	1	DISCO FISSO AR 510	AR 510 FIXED DISK
4	1	SUPPORTO AR 510	AR 510 SUPPORT
5	1	AR 510 RV80 + PAM100 AUT	AR 510 RV80 + PAM100 AUT
6	9	VITE TCEI M12x40 UNI5931	SHC SCREW M12x40 UNI5931
7	2	SPINA CIL 12x040-A 8735	CYL. PIN 12x040-A 8735
8	2	SPINA CIL 08x055-A 8735	CYL. PIN 08x055-A 8735
9	6	VITE TCEI M8x50 UNI5931	SHC SCREW M8x50 UNI5931
10	6	VITE TCEI M08x030 5931 8.8	SHC SCREW M08x030 5931 8.8
11	6	VITE TCEI M12x30 UNI5931	SHC SCREW M12x30 UNI5931
12	2	SPINA CIL 12x030-A 8734	CYL. PIN 12x030-A 8734



8.5 BMR2



Via dell'Industria, 4, 26010 Vaiano Cremasco (CR) ITALY

Tel.: +39 0373 278505 – fax.: +39 0373 278065

E-mail: autorotor@autorotorgroup.com - web: <http://www.autorotorgroup.com>

