



(en) MODEL: (fi) MALI: (hu) MODELL:  
(fr) MODELE: (no) MODELL: (lv) MODELIS:  
(es) MODELO: (pt) MODELO: (lt) MODELIS:  
(de) MODELL: (el) MONTELO: (sk) MODEL:  
(it) MODELLO: (tr) MODEL: (sl) MODEL:  
(nl) MODEL: (pl) MODEL: (ru) МОДЕЛЬ:  
(da) MODEL: (cs) MODEL:  
(sv) MODELL: (et) MUDEL:

SB20X-XXX-X  
SB30X-XXX-X

## GENERAL INFORMATION

COVERING: SAFETY PRECAUTIONS & PLACING INTO SERVICE

### AUTOMATIC PULSATION DAMPENERS



READ THIS MANUAL CAREFULLY BEFORE INSTALLING,  
OPERATING OR SERVICING THIS EQUIPMENT.

It is the responsibility of the employer to place this information into the hands of the operator.

### OPERATING AND SAFETY PRECAUTIONS

READ, UNDERSTAND, AND FOLLOW THIS INFORMATION TO AVOID INJURY AND PROPERTY DAMAGE.



The EC Declaration of Incorporation in this manual states that these pulsation dampeners have been reviewed as components for compliance with European Community Directive 94/9/EC for equipment intended for use in potentially explosive atmospheres, commonly referred to as the ATEX directive.

Pulsation dampeners were reviewed for conformance to ATEX designation Ex II 2 GD X. These ATEX designations define the applications, the type and duration of the potentially explosive atmospheres, the type of protection and the maximum surface temperature. The "X" indicates that additional special considerations are required for safe application, installation, operation and / or maintenance when used in potentially explosive atmospheres. The explosive hazard assessment of the complete machine into which this pulsation dampener will be incorporated will determine the final ATEX marking and conditions. Because this pulsation dampener's machine is not known, it has not been marked with the ATEX directive symbols.

**WARNING** = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

**CAUTION** = Hazards or unsafe practices which could result in minor personal injury, product or property damage.

**NOTICE** = Important installation, operation or maintenance information.

**NOTICE** All special conditions must be followed for this component to conform to the ATEX directive and for ATEX Declaration of Incorporation to be valid.

**WARNING** Non-compliance with any of these special conditions could result in ignition of explosive atmospheres.

- Rubbing and friction can cause sparks or elevated temperatures may be a source of ignition of an explosive atmosphere.

**WARNING** EXCESSIVE AIR PRESSURE. Can cause personal injury, pulsation dampener damage or property damage.

- Do not exceed the maximum inlet air pressure of 8.3 bar (120 p.s.i.) as stated on the pulsation dampener model plate. When the pulsation dampener is used in a forced-feed (flooded inlet) situation, a "check valve" must be installed at the pump and pulsation dampener inlets.
- A filter capable of filtering particles larger than 50 microns should be used. There is no lubrication required other than the "O" ring lubricant which is applied during assembly or repair.
- If lubricated air is present, make sure that it is compatible with the Nitrile "O" rings in the air section of the pulsation dampener.

**WARNING** MAXIMUM SURFACE TEMPERATURE LIMITS. Maximum surface temperatures depend on the operating conditions of heated fluid in the pulsation dampener. Do not exceed the maximum temperature limits of 93° C (200° F).

- Ensure proper housekeeping to eliminate dust buildup on the pulsation dampener. Certain dusts may ignite at the pulsation dampener surface temperature limits as noted.
- Maximum temperatures are based on mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperature. Consult the chemical manufacturer for chemical compatibility and temperature limits.

**WARNING** EXCESSIVE MATERIAL PRESSURE. Do not exceed the maximum fluid pressure of 8.3 bar (120 p.s.i.). Thermal expansion will occur when fluid lines are exposed to elevated temperatures and will cause a system rupture. Install a pressure relief valve in the pumping system.

- Be sure material hoses and other components are able to withstand fluid pressures developed by the pump. Damaged hose could leak flammable liquids and create potentially explosive atmospheres. Check all hoses for damage or wear. Be certain dispensing device is clean and in proper working condition.

**WARNING** STATIC SPARK. Can cause explosion resulting in severe injury or death. Ground pulsation dampener and pumping system.

- Sparks can ignite flammable material and vapors.
- The pumping system and object being sprayed must be grounded when it is pumping, flushing, recirculating or spraying flammable materials such as paints, solvents, lacquers, etc. or used in a location where surrounding atmosphere is conducive to spontaneous combustion. Ground the dispensing valve or device, containers, hoses and any object to which material is being pumped.
- Use the pulsation dampener grounding lug provided for connection of a ground wire to a good earth ground source. Use ARO part no. 66885-1 ground kit or a suitable ground wire (12 ga. min.).
- Secure pulsation dampener, connections and all contact points to avoid vibration and generation of contact or static spark.
- Consult local building codes and electrical codes for specific grounding requirements.
- After grounding, periodically verify continuity of electrical path to ground. Test with an ohmmeter from each component (e.g., hoses, pulsation dampener, pump, clamps, container, spray gun, etc.) to ground to insure continuity. Ohmmeter should show 0.1 ohms or less.
- Submerge the outlet hose end, dispensing valve or device in the material being dispensed if possible. (Avoid free streaming of material being dispensed.)
- Use hoses incorporating a static wire or use groundable piping.
- Use proper ventilation.
- Keep flammables away from heat, open flames and sparks.
- Keep containers closed when not in use.

**WARNING** Pulsation dampener exhaust may contain contaminants. Can cause severe injury. Pipe air chamber exhaust away from work area and personnel.

- Pipe the exhaust to a safe location when pumping hazardous or flammable materials.
- In the event of a diaphragm rupture, material can be forced out of the relief exhaust.

**⚠ WARNING** LEAKING FLUIDS. Can cause explosive hazards. Creep of gasket materials can cause fasteners to loosen, resulting in leakage of flammable liquids and create potentially explosive atmospheres.

- Re-torque all fasteners before operation. Re-torque all fasteners and pipe fittings to insure against fluid leakage.
- Pulsation dampener damage caused by improper mounting or piping stress and external damage can result in fluid leakage.

**⚠ WARNING** CHEMICAL COMPATIBILITY HAZARD. Do not use with certain fluids. Incompatible fluids may attack and weaken the housing, causing rupture or explosion, which can result in property damage or severe injury. For specific fluid compatibility, consult the chemical manufacturer.

**⚠ WARNING** EXPLOSION HAZARD. Models containing aluminum wetted parts cannot be used with Ill.-Trichloroethane, Methylene Chloride or other Halogenated Hydrocarbon solvents which may react and explode.

**⚠ WARNING** USE ONLY WITH COMPRESSED AIR. Do not use bottled gas products to pressurize the pulsation dampener. Unregulated high pressure bottled gas has the potential for over pressurization. Certain gasses, such as Nitrogen, can cause unpredictable results. The pressure source **MUST BE REGULATED**.

**⚠ WARNING** DISASSEMBLY HAZARD. Do not disassemble this unit when it is under pressure. Relieve all material pressure in the pumping system before attempting service or disassembly.

- Disconnect air lines and carefully bleed any pressure off the system. Be certain the system is not maintaining pressure due to a material restriction in the hose, line, dispensing device, or the spray or extrusion tip. Failure to relieve pressure both in up stream and down stream may result in an injury upon disassembly.

**⚠ CAUTION** NOT FOR STRUCTURAL SUPPORT. Do not use this product to support other system components or use as a step. Improper support can result in fracture of the housing, causing damage.

- Plumbing must be supported to prevent stresses upon it. Install using mounting hardware supplied.
- Protect the pulsation dampener from external damage. Consideration to protect the pulsation dampener from damage should be made in the system design.

**⚠ CAUTION** AIR MUST BE SUPPLIED TO THE PULSATION DAMPENER BEFORE APPLYING FLUID PRESSURE. Failure to pressurize with air first can damage the bladder.

- Always relieve the fluid pressure before removing the air pressure. Failure to relieve fluid pressure can damage diaphragm.

**NOTICE** Place the recommendations given in these special conditions, and any similar recommendations identified by the explosive hazard assessment of the complete machine, in the accompanying literature of the machine into which the pulsation dampener is incorporated.

- To safely use this product and conform with the provisions of the Machinery Directive 98/37/EC, all instructions given in the accompanying literature, in addition to all conditions, notices and warnings given herein, must be followed.
- The EC Declaration of Incorporation in this manual states that the listed products and models have been reviewed for compliance to European Community Directive 94/9/EC for equipment for use in potentially explosive atmospheres. Pulsation dampeners are intended to be integrated or incorporated into a larger machine. Ingersoll-Rand Company Limited cannot foresee all of the ways that this component may be applied and therefore, Ingersoll-Rand Company Limited cannot provide all of the

safety aspects of the larger, completed machine. It remains, therefore, the responsibility of the builder of the large, completed machine to ensure that the large, completed machine, including all component parts, meets all of the safety requirements for application, installation, operation and maintenance in accordance with all applicable standards and regulations (local, state, country, federal, etc.). If the larger, completed machine is to be sold in the European Union, then it remains the builder's sole responsibility to properly guard, warn, identify, state and mark the product as such and to provide Declaration of Conformity to applicable directives.

## EXPLANATION OF ATEX

1. Assess their products to prevent creation of an explosive atmosphere or a source of ignition of an explosive atmosphere.
2. Certify that when the products are properly installed, maintained and used for their intended purpose, they do not endanger the health and safety of persons, animals or property.

The ATEX Directive recognizes that the probability of a serious event occurring varies with:

- The explosive properties of the atmosphere
- The probability of the atmosphere being present
- The probability of the machinery causing an explosive atmosphere
- The probability of the machinery causing an ignition source

The ATEX Directive recognizes the need for special conditions of installation, operation and maintenance that must be followed to reduce or eliminate this potential for a serious event.

The ATEX Directive requires a completed machine to be marked to indicate that the completed machine has been certified for use in potentially explosive atmospheres and to inform users of limits and special conditions of use.

## ATEX DIRECTIVE MARKINGS

Ex II 2 GD X serves as an example of an ATEX Directive marking on a complete machine, where the following symbol indicates:

1. Ex Mark:  
EX signifies certification for use in an explosive atmosphere, followed by other symbols indicating the details of that certified use.
2. Equipment Group:  
II Equipment Group II - non-mine use.
3. Equipment Category:  
2 Group II Equipment Category 2 - equipment in category 2 is intended for use in places classified as zone 1 or 21 (defined in standard EN 1127-1) in which explosive atmospheres are only likely to occur. Protection is ensured during normal use and in the event of frequently occurring disturbances or normal equipment faults. Category 2 equipment can also be used where Category 3 equipment is used.
4. Type of Explosive Atmosphere:  
G Evaluation for explosive atmospheres caused by gases, vapors or mists.  
D Evaluation for explosive atmospheres caused by dust.
5. Special conditions required for safe application, installation, operation and maintenance (optional marking):  
X Indicates that there are special considerations that **MUST** be followed for the certification to apply.

(en) • SERVICE CENTERS  
(fr) • CENTRES DE SERVICE  
(es) • CENTROS DE SERVICIO  
(de) • SERVICE-CENTER  
(it) • CENTRI ASSISTENZA  
(nl) • SERVICECENTRA  
(da) • SERVICE CENTRE  
(sv) • REPRESENTANTEN

(fi) • HUOLTOPISTEEN  
(no) • SERVICESENTRER  
(pt) • CENTROS DE SERVIÇO  
(el) • ΚΕΝΤΡΑ ΣΥΝΤΗΡΗΣΗΣ  
(tr) • BAKIM MERKEZLERİ  
(pl) • BIURA OBSŁUGI  
(cs) • SERVISNÍ STŘEDIŠKA  
(et) • TEENINDUSKESKUSED

(hu) • SZERVIZKÖZPONTOK  
(lv) • SERVISA CENTRI  
(lt) • SERVISO CENTRAI  
(sk) • SERVISNÉ STREDISKÁ  
(sl) • SERVISNI CENTRI  
(ru) • ЦЕНТРЫ ОБСЛУЖИВАНИЯ

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• Latin America  
Ingersoll-Rand PEG  
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Telephone: (305) 222-0812 / 559-0500  
Fax: (305) 222-0864 / 559-7505

# DECLARATION OF INCORPORATION

(fr) DECLARATION D'INCORPORATION  
(es) DECLARACIÓN DE INCORPORACIÓN  
(de) ERKLÄRUNG ZUM EIN- / ZUSAMMENBAU  
(it) DICHIARAZIONE DI INCORPORAZIONE  
(nl) ORGANISATIEVERKLARING

(da) ERKLÆRING PÅ INKORPORATION  
(sv) INTEGRERINGSDEKLARATION  
(fi) VAKUUTUS RAKENNEKOKONAISSUDESTA  
(no) INKORPORASJONSDEKLARASJON  
(pt) DECLARAÇÃO DE INCORPORAÇÃO

## MANUFACTURED BY:

(fr) FABRIQUE PAR:  
(es) FABRICADA POR:  
(de) HERGESTELLT VON:  
(it) FABBRICATO DA:  
(nl) VERVAARDIGD DOOR:

(da) FREMSTILLET AF:  
(sv) TILLVERKAT AV:  
(fi) VALMISTAJA:  
(no) PRODUSERT AV:  
(pt) MANUFACTURADO POR:

**INGERSOLL-RAND COMPANY**  
ONE ARO CENTER • BRYAN, OHIO, USA 43506-0151

## TYPE / SERIES: AUTOMATIC PULSATION DAMPENER

(fr) TYPE / SERIE: AMORTISSEUR DE PULSATIONS AUTOMATIQUE  
(es) TIPO / SERIE: AMORTIGUADOR DE PULSACIONES AUTOMÁTICO  
(de) TYP / SERIE: AUTOMATISCHER PULSATIONS DÄMPFER  
(it) TIPO / SERIE: SMORZATORE DI PULSAZIONI AUTOMATICO  
(nl) TYPE / SERIE: AUTOMATISCHE PULSERINGSDEMPER  
(da) TYPE / SERIER: AUTOMATISK PULSERINGS DÆMPER  
(sv) TYP / SERIE: AUTOMATISK PULSDÄMPARE  
(fi) TYYPPI / SARJA: AUTOMAATTINEN PULSAATIOVAIMENNIN  
(no) TYPE / SERIE: AUTOMATISK PULSERINGSDEMPER  
(pt) TIPO / SERIES: VÁLVULA DE NIVELAÇÃO AUTOMÁTICA

## MODEL:

(fr) MODELE:  
(es) MODELO:  
(de) MODELL:  
(it) MODELLO:  
(nl) MODEL:

(da) MODEL:  
(sv) MODELL:  
(fi) MALI:  
(no) MODEL:  
(pt) MODELO:

SB20X-XXX-X, SB30X-XXX-X

## SERIAL NO. RANGE: (2005 - 2006) ( )A0XX5XXX ⇒ ( )L0XX6XXX

(fr) N° SERIE:  
(es) GAMA DE No. DE SERIE:  
(de) SERIEN-NR.-BEREICH:  
(it) NUMERI DI SERIE:  
(nl) SERIENUMMERS:

(da) SERIE NR. RÆKKE:  
(sv) SERIE-NR-OMRÅDE:  
(fi) SARJA N:O:  
(no) SERIENUMMERREKKE:  
(pt) NQ DE SERIE DA GAMA:

## This product complies with the following European Community Directives:

(fr) Ce produit est conforme aux directives de la Communauté européenne suivantes:  
(es) Este producto cumple con las siguientes Directrices de la Comunidad Europea:  
(de) Dieses Produkt erfüllt die folgenden Vorschriften der Europäischen Gemeinschaft:  
(it) Questo prodotto è conforme alle seguenti direttive CEE:  
(nl) Dit produkt voldoet aan de volgende EG-richtlijnen:  
(da) Dette produkt imødekommer følgende EU direktiver:  
(sv) Denna produkt överensstämmer med EU:s nedanstående föreskrifter:  
(fi) Tämä tuote täyttää seuraavat EU - direktiivit:  
(no) Dette produktet er i samsvar med følgende direktiver fra Det europeiske felleskap:  
(pt) Este produto está conforme as Directivas da Comunidade Económica Europeia:

98/37/EC, 94/9/EC (Ex II 2GD X)

## The following Standards were used to verify compliance with the Directives:

(fr) Les normes suivantes ont été utilisées pour vérifier la conformité avec les Directives:  
(es) Las siguientes Normas se usaron para verificar el cumplimiento de las Directrices:  
(de) Folgende Normen wurden angewandt, um Erfüllung der Vorschriften zu bestätigen:  
(it) Per verificare la conformità del prodotto alle direttive sono stati usati i seguenti standard:  
(nl) De volgende normen zijn gebruikt om naleving van de richtlijnen te bevestigen:  
(da) Følgende standarder blev benyttet til at efterkontrollere overensstemmelse med direktiverne:  
(sv) Följande normer har använts för bekräfta överensstämmelse med föreskrifterna:  
(fi) Seuraavia standardeja on kätetty varmistamaan:  
(no) Følgende standard ble benyttet til å fastslå samsvar med direktivene:  
(pt) As seguintes Normas foram usadas para se verificar o cumprimento das Directivas:

EN 292, EN 1127-1, EN 13463-1, EN 50014

## Approved by:

(fr) Approuvé par:  
(es) Aprobado por:  
(de) Genehmigt von:  
(it) Approvato da:  
(nl) Goedgekeurd door:

(da) Godkendt af:  
(sv) Godkänt av:  
(fi) Hyväksytty:  
(no) Godkjent av:  
(pt) Aprovado por:

  
Michael Conti ARO-BRYAN, U.S.A.

## Date: 2-23-05

(fr) Date:  
(es) Fecha:  
(de) Datum:  
(it) Data:  
(nl) Datum:

(da) Dato:  
(sv) Datum:  
(fi) Päivämäärä:  
(no) Dato:  
(pt) Data:

## (Engineering Product Manager)

(fr) (Gestionnaire des produits de la technologie)  
(es) (Gerente de ingeniería del producto)  
(de) (Aufreten des Entwicklungsleiters)  
(it) (Responsabile Prodotto Ingegneria)  
(nl) (Engineering Product Manager)

(da) (Teknisk produktleder)  
(sv) (Tekniskt ansvarig chef)  
(fi) (Tuotojohtaja)  
(no) (Engineering Product Manager)  
(pt) (Gerente de Produto de Engenharia)

(el) Δήλωση Ενσωμάτωσης  
(tr) ŞİRKETLEŞME BEYANI  
(pl) DEKLARACJA WBUDOWANIA  
(cs) PROHLÁŠENÍ O ZAČLENĚNÍ

(et) ÜHINEMISDEKLARATSIOON  
(hu) GYÁRTÓI MEGFELEŐSÉGI NYILATKOZAT  
(lv) LEKĻAUSANAS DEKLARĀCIJA  
(lt) INTEGRVIMO DEKLARACIJA

(sk) PREHLÁSENIE O ZAČLENENÍ  
(sl) IZJAVA O VGRADNJI  
(ru) ДЕКПАРАЦИЯ О ВВЕДЕНИИ В ЭКСПЛУАТАЦИЮ

(el) ΚΑΤΑΣΚΕΥΑΣΤΗΚΕ ΑΠΟ: (lv) RAŽOTĀJS:  
(tr) ÜRETİCİ FİRMA: (lt) PĀGAMINTA:  
(pl) WYPRODUKOWANE PRZEZ: (sk) VÝROBCA:  
(cs) VÝROBCE: (sl) PROIZVAJALEC:  
(et) VALMISTAJA: (ru) ИЗГОТОВИТЕЛЬ:  
(hu) GYÁRTÓ:

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(el) ΤΥΠΟΣ / ΣΕΙΡΑ: Αυτόματος αποσβεστήρας παλμών  
(tr) TİP / SERİ: OTOMATİK DARBE SÖNDÜRÜCÜ  
(pl) TYP / SERIA: AUTOMATYCZNY TŁUMIK PULSACJI  
(cs) TYP / SÉRIE: AUTOMATICKÝ TLUMIČ VIBRACÍ  
(et) TÛUP / SEERIA: AUTOMAATNE PULSATSIOONISUMMUTI  
(hu) TÍPUS / SOROZAT: AUTOMATIKUS PULZÁLÁS-CSÖKKENTŐ  
(lv) TIPS / SĒRIJA: AUTOMĀTISKAIS PULSĀCIJAS SLĀPĒTĀJS  
(lt) TIPAS / SERIJA: AUTOMATINIS PULSACIJŲ SLOPINTUVAS  
(sk) TYP / SÉRIA: AUTOMATICKÝ TLMIČ VIBRÁCIÍ  
(sl) TIP / SERIJA: SAMODEJNI DUŠILEC UTRIPANJA  
(ru) ТИП / СЕРИЯ: АВТОМАТИЧЕСКИЙ ДЕМПОРЕР ПУЛЬСАЦИИ

(el) ΜΟΝΤΕΛΟ: (lv) MODELIS: SB20X-XXX-X, SB30X-XXX-X  
(tr) MODEL: (lt) MODELIS:  
(pl) MODEL: (sk) MODEL:  
(cs) MODEL: (sl) MODEL:  
(et) MUDEL: (ru) МОДЕЛЬ:  
(hu) MODELL:

(el) ΕΥΡΟΣ ΣΕΙΡΙΑΚΟΥ ΑΡΙΘΜΟΥ: (2005 & 2006) ( )A0XX5XXX ⇒ ( )L0XX6XXX  
(tr) SERİ NO. ARALIĞI:  
(pl) O NUMERACH SERYJNYCH:  
(cs) ROZSAH VÝROBNÍCH ČÍSEL: (lt) SERIJOS NUMERIŲ DIAPAZONAS:  
(et) SEERIANUMBRITE VAHEMIK: (sk) ROZSAH VÝROBNÝCH ČÍSEL:  
(hu) GYÁRI SZÁM TARTOMÁNY: (sl) OBSEG SERIJSKIH ŠTEVILK:  
(lv) SĒRIJAS NUMURI: (ru) СЕРИЙНЫЕ НОМЕРА:

(el) Το παρόν προϊόν συμμορφώνεται με τις παρακάτω κοινοτικές οδηγίες:  
(tr) Bu ürün aşağıda sıralanmış Avrupa Topluluğu Direktifleriyle uyumludur:  
(pl) Ten produkt jest zgodny z następującymi Dyrektywami Wspólnoty Europejskiej:  
(cs) Tento produkt splňuje následující směrnice EU:  
(et) Käesolev toode vastab järgmistele Euroopa Ühenduse direktiividele:  
(hu) Ez a termék megfelel az Európai Közösség következő irányelveinek:  
(lv) Šis ražojums atbilst šādām Eiropas Savienības direktīvām:  
(lt) Šis gaminy atitinka toliau išvardintas Europos Bendrijos direktyvas:  
(sk) Tento výrobok spĺňa nasledujúce smernice EÚ:  
(sl) Ta izdelek je skladen z naslednjimi smernicami evropske unije:  
(ru) Данное изделие соответствует следующим директивам Европейского Сообщества:

**98/37/EC, 94/9/EC (Ex II 2GD X)**

(el) Για τη διασφάλιση της συμμόρφωσης με τις οδηγίες χρησιμοποιήθηκαν τα ακόλουθα πρότυπα:  
(tr) Direktiflere uyumluluk, aşağıdaki Standartlarca doğrulanmıştır:  
(pl) Zgodność z powyższymi Dyrektywami zweryfikowano stosując następujące Standardy:  
(cs) Pro ověření způsobilosti dle směrnic byly použity následující normy:  
(et) Direktiividele vastavuse kontrollimiseks kasutati järgmisi standardeid:  
(hu) Az irányelveknek való megfelelés ellenőrzését a következő szabványok szerint végezték:  
(lv) Pēc šādiem standartiem pārbaudīja atbilstību direktīvām:  
(lt) Atitikimas paminėtoms direktyvoms patikrintas naudojant šiuos standartus:  
(sk) Pre overenie súladu so smernicami boli použité nasledovné normy:  
(sl) Za preverjanje skladnosti s smernicami so bili uporabljene naslednji standardi:  
(ru) Следующие стандарты использовались для подтверждения соответствия данным директивам:

**EN 292, EN 1127-1, EN 13463-1, EN 50014**

(el) Εγκρίθηκε από: (lv) Apstiprināja:  
(tr) Onaylayan: (lt) Patvirtinta:  
(pl) Zatwierdził: (sk) Schválil:  
(cs) Schválil: (sl) Odobril:  
(et) Kinnitatud: (ru) Одобрено:  
(hu) Jóváhagyta:

  
Michael Conti ARO Bryan, U.S.A.

(el) Ημερομηνία: **2-23-05**  
(tr) Tarih: (lv) Datums:  
(pl) Data: (lt) Data:  
(cs) Datum: (sk) Dátum:  
(et) Kuupäev: (sl) Datum:  
(hu) Dátum: (ru) Дата:

(el) (Υπεύθυνος Μηχανολογικού Ελέγχου Προϊόντων) (lv) (Inženiertehnisko ražojumu speciālists)  
(tr) (Ürün Tasarımı Yöneticisi) (lt) (Engineering Product Manager)  
(pl) (Menedżer ds. produktu) (sk) (Vedúci projektant)  
(cs) (Vedoucí projektant) (sl) (Tehnični produktivni vodja)  
(et) (Tehniline tootejuht) (ru) (Технический руководитель)  
(hu) (Fejlesztési termékmenedzser)



INGERSOLL-RAND COMPANY • P.O. BOX 151 • ONE ARO CENTER • BRYAN, OHIO, USA 43506-0151

CONTROLLED DOCUMENT NO.  
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PN 97999-1094