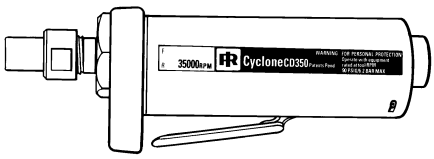

TPD1348

03537628
Form P6919
Edition 10
January, 2000

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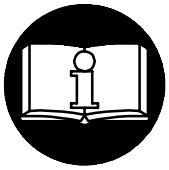
E
P

OPERATION AND MAINTENANCE MANUAL FOR SERIES CD AND CX GRINDERS

NOTICE

Series CD and CX Grinders are designed for close–quarter work in the metal fabricating industry, shipyards, pipe fabrication, die and mold manufacturing and limited space applications. They are particularly good where conduits, pipes, ducts etc. pass through bulkheads or frames. These small Grinders are very efficient at grinding weld bead and leaving a fine finish.

Ingersoll–Rand is not responsible for customer modification of tools for applications on which Ingersoll–Rand was not consulted.



⚠ WARNING

**IMPORTANT SAFETY INFORMATION ENCLOSED.
READ THIS MANUAL BEFORE OPERATING TOOL.
IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.**

PLACING TOOL IN SERVICE

- **Always operate, inspect and maintain this tool in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).**
- **For safety, top performance, and maximum durability of parts, operate this tool at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet with 5/16” (8 mm) inside diameter air supply hose.**
- **Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.**
- **Do not use damaged, frayed or deteriorated air hoses and fittings.**
- **Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905–1 for a typical piping arrangement.**
- **Always use clean, dry air at 90 psig maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool.**
- **Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.**
- **Do not remove any labels. Replace any damaged label.**

USING THE TOOL

- **Always wear eye protection when operating or performing maintenance on this tool.**
- **Always wear hearing protection when operating this tool.**
- **Keep hands, loose clothing and long hair away from rotating end of tool.**
- **Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.**
- **Keep body stance balanced and firm. Do not overreach when operating this tool. High reaction torques can occur at or below the recommended air pressure.**
- **Tool accessories may continue to rotate briefly after throttle is released.**
- **Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.**
- **Use accessories recommended by Ingersoll–Rand.**
- **This tool is not designed for working in explosive atmospheres.**
- **This tool is not insulated against electric shock.**

NOTICE

The use of other than genuine Ingersoll–Rand replacement parts may result in safety hazards, decreased tool performance, and increased maintenance, and may invalidate all warranties.

Repairs should be made only by authorized trained personnel. Consult your nearest Ingersoll–Rand Authorized Servicenter.

Refer All Communications to the Nearest Ingersoll–Rand Office or Distributor.

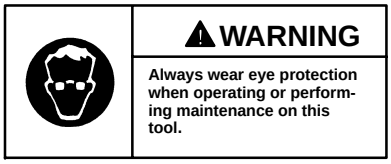
Printed in U.S.A.

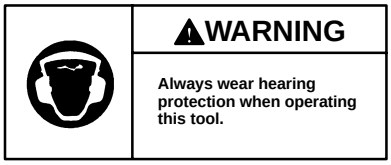
INGERSOLL-RAND®
PROFESSIONAL TOOLS

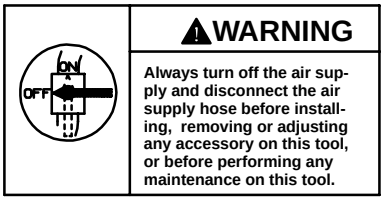
WARNING LABEL IDENTIFICATION

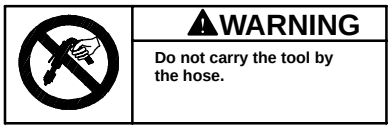
⚠ WARNING

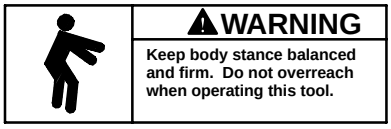
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

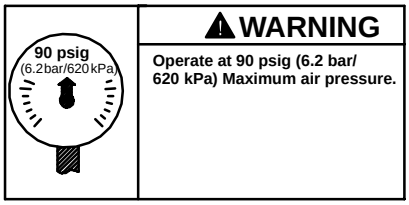












GRINDER SPECIFIC WARNINGS

- **Do not use this tool if actual free speed exceeds the nameplate rpm.**
- **Before mounting a wheel, after any tool repair or whenever a Grinder is issued for use, check free speed of Grinder with a tachometer to make certain its actual speed at 90 psig (6.2 bar/620 kPa) does not exceed rpm stamped or printed on the nameplate. Grinders in use on the job must be similarly checked at least once each shift.**
- **Always use the recommended Ingersoll–Rand Wheel Guard furnished with the Grinder.**
- **Do not use any grinding wheel, bur or other accessory having a maximum operating speed less than the free speed of the Grinder in which it is being used. Always conform to maximum rpm on grinding wheel blotters.**
- **Inspect all grinding wheels for chips or cracks prior to mounting. Do not use a wheel that is chipped or cracked or otherwise damaged. Do not use a wheel that has been soaked in water or any other liquid.**
- **Make certain grinding wheel properly fits the arbor. Do not use reducing bushings to adapt a wheel to any arbor unless such bushings are supplied by and recommended by the wheel manufacturer.**
- **After mounting a new wheel, hold the Grinder under a steel workbench or inside a casting and run it for at least 60 seconds. Make certain no one is within the operating plane of the grinding wheel. If a wheel is defective, improperly mounted or the wrong size and speed, this is the time it will usually fail.**
- **When starting with a cold wheel, apply it to the work slowly until the wheel gradually warms up. Make smooth contact with the work and avoid any bumping action or excessive pressure.**
- **Always replace a damaged, bent or severely worn wheel guard. Do not use a wheel guard that has been subjected to a wheel failure.**
- **Make certain wheel flanges are at least 1/3 the diameter of grinding wheel, free of nicks, burrs and sharp edges. Always use wheel flanges furnished by the manufacturer; never use a makeshift flange or a plain washer. Tighten Flange Nut securely.**
- **Guard opening must face away from operator. Bottom of wheel must not project beyond guard.**
- **Series CD200 Grinders have a free speed of 20 000 rpm; Series CD250 and CX250 Grinders have a free speed of 25 000 rpm; Series CD300 and CX300 Grinders have a free speed of 30 000 rpm and Series CD350 Grinders have a free speed of 32 000 rpm, when operated at 90 psig (6.2 bar/620 kPa) air pressure. Operation at higher air pressure will result in excessive speed.**
- **Always match collet size with accessory shank size.**
- **Always insert tool shank no less than 10 mm in the collet. Tighten Collet Nut securely to prevent accessory from working out during operation of the Grinder. Check tightness of Collet Nut before operating the Grinder. Pay particular attention to the fact that allowed speed of a mounted point is lowered when the length of the shaft is increased between end of collet and mounted point (overhang).**

PLACING TOOL IN SERVICE

WARNING: Incorrect combinations of grinding wheel, wheel guard and tool speed could result in injury. Correct combinations are specified below:

Guard Part Number	Wheel Type	Wheel Diameter in. (mm)	Maximum Wheel Thickness in. (mm)	Maximum Speed rpm
AG20–106–3	27	3 (76)	1/4 (6.4)	26 250

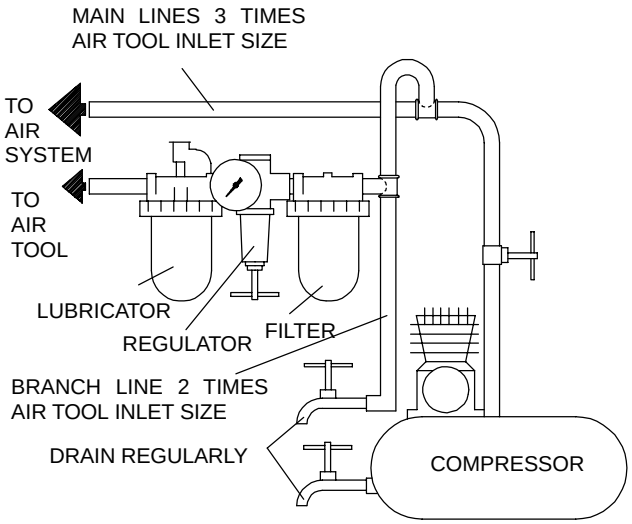
LUBRICATION

Ingersoll–Rand No. 10 **Ingersoll–Rand No. 68**
Ingersoll–Rand No. 50

Always use an air line lubricator with these tools.
We recommend the following Filter–Lubricator–Regulator Unit:

For USA – No. C18–03–FKG0–28

After each two hours of operation, if an air line lubricator is not used, inject 1/2 to 1 cc of Ingersoll–Rand No. 10 Oil into the Air Inlet.



(Dwg. TPD905–1)

MOUNTING THE ROUTER ATTACHMENT

To mount a CD–RK4 Router Attachment to a CD Series Grinder having a collet, proceed as follows:

1. The Clamp Nut (22) has a **left–hand thread.** Grasp the tool in copper–covered vise jaws with the spindle upward and using the Clamp Nut Wrench (44) or a 1–3/16" wrench, rotate the Nut **clockwise** to remove it.
2. Thread the new Motor Clamp Nut (60) onto the Housing (5) and tighten the Nut between 20 and 25 ft–lb (27 and 34 Nm) torque. This is also a **left–hand thread,** rotate the Nut **counterclockwise** to tighten it.
3. Insert a router bit into the Collet. If the Nosepiece and Collet Nut were removed, install them and thread the Collet Nut onto the Collet Body (23) until it is hand tight.
4. Insert the Sprag Pin (68) through the hole in the Motor Clamp Nut and rotate the Collet Nut until the Pin sprags the flat on the Collet Body.
5. Using the Sprag Pin to hold the Collet Body and one of the Collet Wrenches on the Collet Nut, tighten the Nut.
6. Install the Nosepiece Adapter (61) over the bit and collet assembly and thread it onto the Motor Clamp Nut. Tighten the Adapter between 2 and 3 ft–lb (2.7 and 4.0 Nm) torque.
7. Install the Adapter Lock Screw (62) in the Adapter and using a 5/64" hex wrench, tighten it between 12 and 18 in–lb (1.3 and 2.0 Nm) torque.
8. Thread the Locknut (66) onto the Nosepiece Adapter.
9. Thread the Nosepiece Assembly (63) onto the Adapter and then back the Locknut against the Assembly. Tighten the Locknut between 14 and 19 ft–lb (19.0 and 25.8 Nm) torque.
10. If a Trimmer Guide is used, thread the Guide into the Nosepiece Assembly and tighten the Guide between 3 and 4 ft–lb (4.1 and 5.4 Nm) torque.

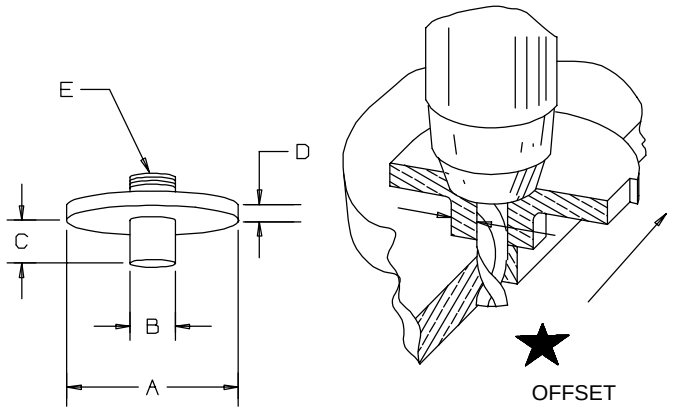
PLACING TOOL IN SERVICE

CHANGING THE ROUTER BIT

To change a Router Bit, proceed as follows:

1. Using a 5/64” hex wrench, loosen the Adapter Lock Screw (62). Unscrew and remove the assembled Nosepiece Adapter (61).
2. Insert the Sprag Pin (68) into the hole in the side of the Motor Clamp Nut (60) and rotate the Collet Nut (26) until the Pin sprags the flat on the Collet Body (23).
3. Using one of the Collet Wrenches, loosen the Collet Nut. Remove the router bit and insert the new bit into the Collet. Tighten the Collet Nut.
4. Remove the Sprag Pin and install the assembled Nosepiece Adapter over the bit and thread it onto the Motor Clamp Nut. Tighten the Adapter between 2 and 3 ft–lb (2.7 and 4.0 Nm) torque.
5. Using a 5/64” hex wrench, tighten Adapter Lock Screw between 12 and 18 in–lb (1.3 and 2.0 Nm) torque.

TRIMMER GUIDE



Trimmer Guide Dimensions

(Dwg. TPD1208)

PART NUMBER FOR ORDERING	A	B	C	D	E
R120–128–2 (for 1/4” shank)	1–1/2	3/8	3/8	1/8	1/2–20NF
R120–128–7 (for 1/4” shank)	2–1/2	1/2	1/2	3/16	1/2–20NF

★ Note: Offset = 1/2 (“B” dimension minus trimmer bit diameter.)

The following equipment is available at an extra price and must be ordered separately:

1. Router Attachment Assembly

   for models using 1/4” diameter bits . . . . . Part No. CD–RK4

2. Trimmer Guide (for Router Attachments)

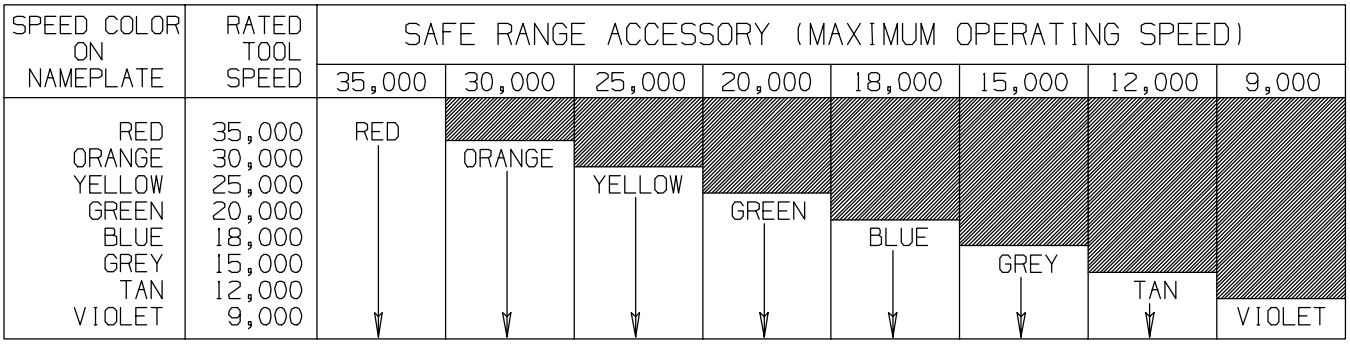
   for 1/4” shank . . . . . Part No. R120–128–2
   for 1/4” shank . . . . . Part No. R120–128–7

NEW GRINDER TO ACCESSORY COLOR MATCHING GUIDE

Ingersoll–Rand has pioneered a new color code system designed to:

1. Simplify the identification of rated tool speed via a unique corresponding color match.
2. Easily communicate the appropriate backing pads and accessories for each tool through a matching color code system on the backing pads and/or other corresponding Grinder accessories.
3. The chart below demonstrates the color code system between the Grinder and the accessory.

(READ FROM LEFT TO RIGHT)



(Dwg. TPD1146–1)

HOW TO ORDER CYCLONE GRINDERS

Model	Speed/rpm
GRINDERS with 1/4” COLLET	
CD350RG4 (Rear Exhaust)	32 000
CD300RG4 (Rear Exhaust)	30 000
CD250RG4 (Rear Exhaust)	25 000
CD200RG4 (Rear Exhaust)	20 000
3” EXTENDED GRINDERS with 1/4” COLLET	
CX300RG4 (Rear Exhaust)	30 000
CX250RG4 (Rear Exhaust)	25 000
CX200RG4 (Rear Exhaust)	20 000
GRINDERS with 3/8”–24 thread ARBOR	
CD250RH63 (Rear Exhaust)	25 000
CD200RH63 (Rear Exhaust)	20 000

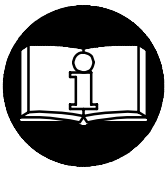
F

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES MEULEUSES DES SÉRIES CD ET CX

NOTE

Les meuleuses des Séries CD et CX sont destinées aux travaux dans des endroits restreints dans l'industrie des fabrications métalliques, des chantiers navals, des fabrications de tuyauteries, de matrices et de moules, et pour toutes les applications où l'espace est limité. En particulier, elles sont idéales dans les endroits où les tubes, tuyauteries, gaines, etc. passent à travers des cloisons ou des châssis. Ces petites meuleuses sont très efficaces pour le meulage des cordons de soudure lorsqu'une bonne finition est requise.

Ingersoll–Rand ne peut être tenu responsable de la modification des outils par le client pour les adapter à des applications qui n'ont pas été approuvées par Ingersoll–Rand.



⚠ ATTENTION

**D'IMPORTANTES INFORMATIONS DE SECURITÉ SONT JOINTES.
LIRE CE MANUEL AVANT D'UTILISER L'OUTIL.
L'EMPLOYEUR EST TENU À COMMUNIQUER LES INFORMATIONS
DE CE MANUEL AUX EMPLOYÉS UTILISANT CET OUTIL.
LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES**

MISE EN SERVICE DE L'OUTIL

- **Toujours exploiter, inspecter et entretenir cet outil conformément au Code de sécurité des outils pneumatiques portatifs de l'American National Standards Institute (ANSI B186.1).**
- **Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster tout accessoire sur cet outil, ou d'entreprendre une opération d'entretien quelconque sur l'outil.**
- **Ne pas utiliser des flexibles ou des raccords endommagés, effilochés ou détériorés.**
- **S'assurer que tous les flexibles et les raccords sont correctement dimensionnés et bien serrés. Voir Plan TPD905–1 pour un exemple type d'agencement des tuyauteries.**
- **Utiliser toujours de l'air sec et propre à une pression maximum de 6,2 bar. La poussière, les fumées corrosives et/ou une humidité excessive peuvent endommager le moteur d'un outil pneumatique.**
- **Ne jamais lubrifier les outils avec des liquides inflammables ou volatiles tels que le kérosène, le gasol ou le carburant d'aviation.**
- **Ne retirer aucune étiquette. Remplacer toute étiquette endommagée.**

UTILISATION DE L'OUTIL

- **Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.**
- **Porter toujours une protection acoustique pendant l'utilisation de cet outil.**
- **Tenir les mains, les vêtements flous et les cheveux longs, éloignés de l'extrémité rotative de l'outil.**
- **Prévoir, et ne pas oublier, que tout outil motorisé est susceptible d'à–coups brusques lors de sa mise en marche et pendant son utilisation.**
- **Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil. Des couples de réaction élevés peuvent se produire à, ou en dessous, de la pression d'air recommandée.**
- **La rotation des accessoires de l'outil peut continuer pendant un certain temps après le relâchement de la gâchette.**
- **Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.**
- **Utiliser les accessoires recommandés par Ingersoll-Rand.**
- **Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives,**
- **Cet outil n'est pas isolé contre les chocs électriques,**

NOTE

L'utilisation de rechanges autres que les pièces d'origine Ingersoll–Rand peut causer des risques d'insécurité, réduire les performances de l'outil et augmenter l'entretien, et peut annuler toutes les garanties.

Les réparations ne doivent être effectuées que par des réparateurs qualifiés autorisés. Consultez votre Centre de Service Ingersoll–Rand le plus proche.

Adressez toutes vos communications au Bureau Ingersoll–Rand ou distributeur le plus proche.

Imprimé aux É.U.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

⚠ ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES

⚠ ATTENTION

Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.

⚠ ATTENTION

Porter toujours une protection acoustique pendant l'utilisation de cet outil.

⚠ ATTENTION

Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster tout accessoire sur cet outil, ou d'entreprendre une opération d'entretien quelconque sur l'outil.

⚠ ATTENTION

Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.

⚠ ATTENTION

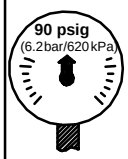
Ne pas transporter l'outil par son flexible.

⚠ ATTENTION

Ne pas utiliser des flexibles ou des raccords endommageés, effilochés ou détériorés.

⚠ ATTENTION

Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil.



⚠ ATTENTION

Utiliser de l'air comprimé à une pression maximum de 6,2 bar (620 kPa).

AVERTISSEMENTS SPECIFIQUES AUX MEULEUSES

- **Ne pas utiliser cet outil si la vitesse à vide réelle dépasse celle indiquée sur la plaque signalétique.**
- **Avant de monter une meule, après toute réparation de l'outil ou avant de fournir une meuleuse pour utilisation, vérifier la vitesse à vide de la meuleuse avec un tachymètre pour s'assurer que la vitesse réelle à 6,2 bar (620 kPa) ne dépasse pas celle poinçonnée ou imprimée sur la plaque signalétique. Les meuleuses sorties sur chantier doivent être vérifiées de la même façon au moins une fois par poste.**
- **Utiliser toujours le protège–meule Ingersoll–Rand fourni avec la meuleuse.**
- **Ne jamais utiliser une meule, une fraise ou tout autre accessoire ayant une vitesse de service inférieure à la vitesse à vide de la meuleuse sur laquelle il est monté. Respecter toujours la vitesse maximum inscrite sur les disques en papier de la meule.**
- **Inspecter toutes les meules avant de les monter pour vérifier qu'elles ne présentent pas d'éclats ou de fissures. Ne jamais utiliser une meule écaillée, fissurée ou ayant un endommagement quelconque. Ne jamais utiliser une meule qui a été trempée dans l'eau ou tout autre liquide.**
- **S'assurer que la meule se monte correctement sur l'arbre. Ne pas utiliser de bagues réductrices, à moins que ces bagues soient recommandées et fournies par le fabricant de la meule.**
- **Après avoir monté une nouvelle meule, tenir la meuleuse sous un établi en acier ou dans une pièce coulée et la faire tourner pendant au moins 60 secondes. S'assurer que personne ne se tient dans le plan de rotation de la meule. Toute meule défectueuse, mal montée ou de dimension et vitesse incorrectes se cassera généralement à ce moment là.**
- **Pour commencer le travail avec une meule froide, l'appliquer lentement contre la pièce jusqu'à ce que la meule s'échauffe progressivement. Mettre la meule en contact avec la pièce en douceur en évitant tout choc ou pression excessive.**
- **Remplacer toujours un protège–meule endommagé, tordu ou très usé. Ne pas utiliser un protège–meule qui a été soumis à la rupture d'une meule.**
- **S'assurer que les flasques de meule couvrent au moins 1/3 du diamètre de la meule, et qu'ils sont exempts d'entailles, de bavures et d'arêtes vives. Utiliser toujours les flasques fournis par le fabricant; ne jamais utiliser de flasque de provenance douteuse ou de rondelle plate. Serrer fermement l'écrou du flasque.**
- **L'ouverture du protège–meule doit être orientée côté opposé à l'opérateur. Le bas de la meule ne doit pas dépasser le protège–meule.**
- **Les meuleuses de la Série CD200 ont une vitesse à vide de 20 000 tr/mn; les meuleuses des Séries CD250, CX250 ont une vitesse à vide de 25 000 tr/mn; Les meuleuses des Séries CD300 et CX300 ont une vitesse à vide de 30 000 tr/mn; Les meuleuses des Séries CD350 ont une vitesse à vide de 32 000 tr/mn lorsqu'exploitées avec une pression d'air de 6,2 bar (620 kPa). L'exploitation à une pression supérieure produira une vitesse excessive.**
- **Toujours choisir une pince adaptée à la dimension de la queue de l'accessoire.**
- **La queue de l'outil doit toujours être insérée dans la pince sur au moins 10 mm. Serrer fermement l'écrou de pince pour éviter tout desserrage de l'accessoire pendant l'emploi de la meuleuse. Vérifier le serrage de l'écrou de pince avant de mettre la meuleuse en marche. Ne jamais oublier que la vitesse admissible d'une meule sur tige doit être réduite lorsque la longueur de la tige entre le bout de la pince et la meule (porte–à–faux) est augmentée.**

MISE EN SERVICE DE L'OUTIL

ATTENTION: Une mauvaise combinaison de roue d'affûtage, de protection de roue et de vitesse de l'outil peut provoquer un accident corporel. Les combinaisons correctes sont spécifiées ci–dessous:

Référence de la protection	Type de roue	Diamètre de roue mm (po.)	Epaisseru maximale de roue mm (po.)	Vitesse maximale (t/min)
AG20–106–3	27	3 (76)	1/4 (6.4)	26 250

LUBRIFICATION

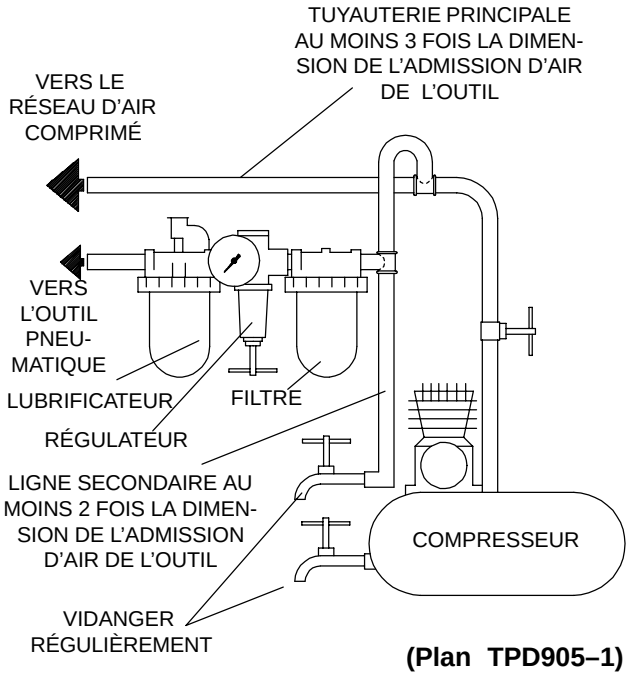
Ingersoll–Rand No. 10
Ingersoll–Rand No. 50

Ingersoll–Rand No. 68

Utiliser toujours un lubrificateur avec ces outils. Nous recommandons l'emploi du filtre–régulateur–lubrificateur suivant :

International – No. C18–03–FKG0–28

Toutes les deux heures de fonctionnement, si un lubrificateur de ligne n'est pas utilisé, injecter 1/2 à 1 cm^3 d'huile Ingersoll–Rand No. 10 dans le raccord d'admission.



(Plan TPD905–1)

MONTAGE DE L'ACCESSOIRE DE DÉFONÇAGE

Le montage d'un accessoire de défonçage CD–RK4 sur une meuleuse de la Série CD équipée d'une pince est effectué de la façon suivante :

1. L'écrou de serrage est **fileté à gauche**. Serrer l'outil dans un étau équipé de mordaches en cuivre, avec la broche dirigée vers le haut, puis déposer l'écrou en le tournant dans **le sens des aiguilles d'une montre** avec la clé d'écrou de serrage ou une clé de 1–3/16".
2. Visser le nouvel écrou de serrage de moteur sur le corps, et le serrer à un couple de 27 à 34 Nm (20 à 25 ft–lb). Cet écrou est aussi **fileté à gauche**. Tourner l'écrou dans **le sens inverse des aiguilles d'une montre** pour le serrer.
3. Monter une fraise dans la pince. Si le nez et l'écrou de pince ont été déposés, les remonter et visser l'écrou de pince sur le corps en le serrant à la main seulement.
4. Insérer la goupille d'arrêt dans le trou de l'écrou de serrage du moteur, et tourner l'écrou de pince jusqu'à ce que la goupille vienne en butée sur le plat du corps de pince.
5. En utilisant la goupille d'arrêt pour retenir le corps et une des clés de pince sur l'écrou de pince, serrer ce dernier.
6. Monter l'adaptateur de nez sur l'ensemble fraise et pince, et le visser sur l'écrou de serrage du moteur. Serrer l'adaptateur à un couple compris entre 2,7 et 4,0 Nm (2 et 3 ft–lb).
7. Monter la vis de blocage de l'adaptateur dans l'adaptateur et, à l'aide d'une clé pour six pans creux de 5/64", la serrer à un couple compris entre 1,3 à 2,0 Nm (12 et 18 in–lb).
8. Visser l'écrou de blocage sur l'adaptateur de nez.
9. Visser l'ensemble de nez sur l'adaptateur et ramener le contre–écrou contre l'ensemble. Serrer le contre–écrou à un couple compris entre 19,0 et 25,8 Nm (14 et 19 ft–lb).
10. Lorsqu'un guide de fraisage est utilisé, le visser dans le nez et serrer le guide à un couple compris entre 4,1 et 5,4 Nm (3 et 4 ft–lb).

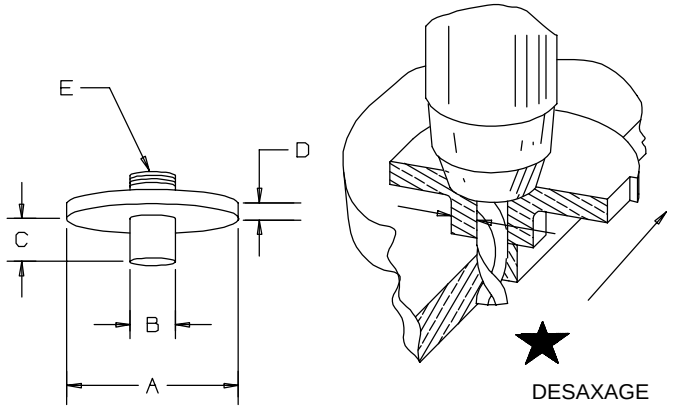
MISE EN SERVICE DE L'OUTIL

CHANGEMENT DE LA FRAISE

Pour changer la fraise, procéder comme suit :

1. A l'aide d'une clé pour six pans creux de 5/64", desserrer la vis de blocage de l'adaptateur. Dévisser et déposer l'adaptateur de nez assemblé.
2. Insérer la goupille d'arrêt dans le trou sur le côté de l'écrou de serrage du moteur, et tourner l'écrou de pince jusqu'à ce que la goupille vienne en butée sur le plat du corps de pince.
3. Desserrer l'écrou de pince à l'aide d'une des clés. Retirer la fraise, et monter la nouvelle fraise dans la pince. Serrer l'écrou de pince.
4. Déposer la goupille d'arrêt et monter l'adaptateur de nez assemblé sur la fraise, et le visser sur l'écrou de serrage du moteur. Serrer l'adaptateur à un couple compris entre 2,7 et 4,0 Nm (2 et 3 ft–lb).
5. A l'aide d'une clé pour six pans creux de 5/64", serrer la vis de blocage de l'adaptateur à un couple compris entre 1,3 à 2,0 Nm (12 et 18 in–lb).

GUIDE DE FRAISAGE



Dimensions du guide de fraisage

(Plan TPD1208)

NUMERO DE REFERENCE POUR LA COMMANDE	A	B	C	D	E
R120–128–2 (pour tige de 1/4")	1–1/2	3/8	3/8	1/8	1/2–20NF
R120–128–7 (pour tige de 1/4")	2–1/2	1/2	1/2	3/16	1/2–20NF

★ NB: Décalage = 1/2 (dimension "B" moins diamètre de la fraise)

Les équipements suivants sont disponibles contre supplément et doivent être commandés séparément:

1. Accessoire de défonçage

   pour modèles utilisant des fraises de 1/4" de diamètre . . . . . Réf. CD–RK4

2. Guide de fraisage (pour accessoires de défonçage)

   (pour tige de 1/4") . . . . . Réf. R120–128–2
   (pour tige de 1/4") . . . . . Réf. R120–128–7

MISE EN SERVICE DE L'OUTIL

— NOUVEAU GUIDE DE CORRESPONDANCE MEULEUSE/ACCESSOIRE À CODE COULEUR—

Ingersoll–Rand a lancé un nouveau système de code couleur destiné à:

1. Simplifier l'identification des vitesses nominales des outils grâce à un code couleur de correspondance unique.
2. Faire correspondre facilement les plateaux–supports et les accessoires à chaque outil grâce à l'introduction d'un code couleur d'identification sur les plateaux et/ou les accessoires des meuleuses.
3. Le tableau ci–dessous illustre le système d'identification couleur pour les meuleuses et les accessoires.

(A LIRE DE GAUCHE A DROITE)

COULEUR DE VITESSE SUR PLAQUE SIGNALETIQUE	VITESSE NOMINALE DE L'OUTIL	GAMME SURE DES ACCESSOIRES (VITESSE MAXIMALE DE FONCTIONNMENT)							
		35 000	30 000	25 000	20 000	18 000	15 000	12 000	9 000
ROUGE	35,000	ROUGE							
ORANGE	30,000		ORANGE						
JAUNE	25,000			JAUNE					
VERT	20,000				VERT				
BLEU	18,000					BLEU			
GRIS	15,000						GRIS		
OCRE	12,000							OCRE	
VIOLET	9,000								VIOLET

(Plan TPD1146–1)

SPÉCIFICATIONS

Modèle	Vitesse tr/mn	Pince
		pouces mm
CD350RG4, CD350RG4	32 000	1/4" 6
CD300RG4, CD300RG4	30 000	1/4" 6
CD250RG4, CD250RG4	25 000	1/4" 6
CD200RG4, CD200RG4	20 000	1/4" 6
CX300RG4, CX300RG4	30 000	1/4" 6
CX250RG4, CX250RG4	25 000	1/4" 6
CX200RG4, CX200RG4	20 000	1/4" 6
Modèle	**Vitesse tr/mn**	**Protège–meule en mm**
CD250RH63, CD250RH63	25 000	3" 76.2
CD200RH63, CD200RH63	20 000	3" 76.2

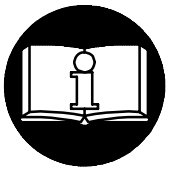
E

MANUAL DE USO Y MANTENIMIENTO PARA AMOLADORAS MODELOS CD Y CX

NOTA

Las Amoladoras Serie CD y CX están diseñadas para trabajo de cercanía en la industria de fabricación de metales, astilleros, fabricación de tuberías, fabricación de moldes y troqueles y aplicaciones en espacios reducidos. Resultan especialmente eficaces para aquellas situaciones en las que los conductos, tuberías, etc. atraviesan tabiques o bastidores. Estas pequeñas amoladoras son muy eficaces para rectificar cordones de soldadura y dejar un acabado fino.

Ingersoll–Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll–Rand.



⚠ AVISO

**SE ADJUNTA INFORMACIÓN IMPORTANTE DE SEGURIDAD.
LEA ESTE MANUAL ANTES DE USAR LA HERRAMIENTA.
ES RESPONSABILIDAD DE LA EMPRESA ASEGURARSE DE QUE EL OPERARIO ESTÉ AL TANTO DE LA INFORMACIÓN QUE CONTIENE ESTE MANUAL.
EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES.**

PARA PONER LA HERRAMIENTA EN SERVICIO

- **Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).**
- **Para seguridad, máximo rendimiento y durabilidad de piezas, use esta herramienta a una máxima presión de aire de 90 psig (6,2 bar/620kPa) en la admisión de manguera de suministro de aire de diámetro interno de 5/16” (8 mm).**
- **Corte siempre el suministro de aire y desconecte la manguera de suministro de aire antes de instalar, desmontar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.**
- **No utilice mangueras de aire y accesorios dañados, desgastados ni deteriorados.**
- **Asegúrese de que todas las mangueras y accesorios sean del tamaño correcto y estén bien apretados. Vea Esq. TPD905–1 para un típico arreglo de tuberías.**
- **Use siempre aire limpio y seco a una presión máxima de 90 bar. El polvo, los gases corrosivos y/o el exceso de humedad podrían estropear el motor de una herramienta neumática.**
- **No lubrique las herramientas con líquidos inflamables o volátiles tales como queroseno, gasoil o combustible para motores a reacción.**
- **No saque ninguna etiqueta. Sustituya toda etiqueta dañada.**

USO DE LA HERRAMIENTA

- **Use siempre protección ocular cuando maneje, o realice operaciones de mantenimiento en esta herramienta.**
- **Use siempre protección para los oídos cuando maneje esta herramienta.**
- **Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.**
- **Anticipe y esté alerta sobre los cambios repentinos en el movimiento durante la puesta en marcha y el manejo de toda herramienta motorizada.**
- **Mantenga una postura de cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden ocurrir reacciones de alto par a, o a menos de, la recomendada presión de aire.**
- **Los accesorios de la herramienta podrían seguir girando brevemente después de haber soltado la palanca de estrangulación.**
- **Las herramientas neumáticas pueden vibrar durante el uso. La vibración, repetición o posiciones incómodas pueden dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte a un médico antes de volver a usarla otra vez.**
- **Utilice únicamente los accesorios Ingersoll–Rand recomendados.**
- **Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta herramienta no está aislada contra descargas eléctricas.**

NOTA

El uso de piezas de recambio que no sean las auténticas piezas Ingersoll–Rand podría poner en peligro la seguridad, reducir el rendimiento de la herramienta y aumentar los cuidados de mantenimiento necesarios, así como invalidar toda garantía.

Las reparaciones sólo serán realizadas por personal cualificado y autorizado. Consulte con el centro de servicio Ingersoll–Rand autorizado más próximo.

Toda comunicación se deberá dirigir a la oficina o al distribuidor Ingersoll–Rand más próximo.

Impreso en EE. UU.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

ETIQUETAS DE AVISO

⚠ AVISO

EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES.

⚠ ADVERTENCIA

Usar siempre protección ocular al manejar o realizar operaciones de mantenimiento en esta herramienta.

⚠ ADVERTENCIA

Usar siempre protección para los oídos al manejar esta herramienta.

⚠ ADVERTENCIA

Cortar siempre el suministro de aire y desconectar la manguera de suministro de aire antes de instalar, retirar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.

⚠ ADVERTENCIA

Las herramientas neumáticas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas podrían dañarle los brazos y las manos. En caso de incomodidad, sensación de hormigueo o dolor, dejar de usar la herramienta. Consultar al médico antes de volver a utilizarla.

⚠ ADVERTENCIA

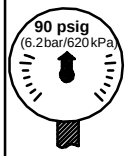
No coger la herramienta por la manguera para levantarla.

⚠ ADVERTENCIA

No utilizar mangueras de aire y accesorios dañados, desgastados ni deteriorados.

⚠ ADVERTENCIA

Mantener una postura del cuerpo equilibrada y firme. No estirar demasiado los brazos al manejar la herramienta.



⚠ ADVERTENCIA

Manejar la herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa).

AVISOS ESPECÍFICOS DE AMOLADORA

- **No use esta herramienta si la velocidad libre real excede la indicada en la placa de identificación.**
- **Antes de montar una muela, y después de todas las reparaciones de herramienta y siempre que se proporcione una Amoladora para su uso, compruebe la velocidad libre de dicha Amoladora con un tacómetro para asegurarse que su velocidad real a 90 psig (620 bar/6,2 kPa) no exceda las rpm estampadas o impresas en la placa de identificación. Las Amoladoras usadas en trabajos deberán ser examinadas similarmente como mínimo una vez en cada jornada de trabajo.**
- **Use siempre el Cubremuela Ingersoll–Rand recomendado y suministrado con la Amoladora.**
- **No use nunca una muela, taladro rotatorio dental o cualquier otro accesorio que tenga una velocidad máxima de funcionamiento menor que la velocidad libre de la Amoladora en la que se esté usando. Cumpla siempre las rpm máximas indicadas en los distanciadores de la muela.**
- **Inspeccione todas las muelas antes de su montaje para ver si tienen grietas o roturas. No use una muela que esté rota o agrietada o dañada de cualquier otra forma. No use una muela que haya estado a remojo en agua o en cualquier otro líquido.**
- **Asegúrese de que la muela esté bien puesta en la espiga. No use anillos reductores para adaptar una muela a la espiga a menos que estos hayan sido suministrados y recomendados por el fabricante de muelas.**
- **Después de haber montado una muela nueva, sujete la Amoladora bajo un banco de acero o en un molde y hágala funcionar durante 60 segundos como mínimo. Asegúrese que no haya nadie en el entorno de operación de muela. Si la muela es defectuosa, está mal montada o es del tamaño y velocidad incorrectas, normalmente fallará en este momento.**
- **Cuando ponga en marcha una muela en frío, aplíquela lentamente al trabajo hasta que se caliente gradualmente. Contacte la zona de trabajo suavemente, y evite golpes o exceso de presión.**
- **Cambie siempre un cubremuela dañado, torcido o muy desgastado. No use un cubremuela que haya experimentado un fallo de muela.**
- **Asegúrese que las bridas de muela sean de un diámetro mínimo de 1/3 de la muela y que estén libres de marcas, abrasiones y bordes afilados. Use siempre las bridas de muela suministradas por el fabricante; no use nunca una brida casera o arandela normal. Apriete la Tuerca de Brida de manera segura.**
- **La apertura del cubremuela deberá estar orientada hacia afuera del operario. La parte inferior de la muela no deberá proyectarse fuera del cubremuela.**
- **Las Amoladoras Modelos CD200 tienen una velocidad libre de 20 000 rpm; Las Amoladoras Modelos CD250 y CX250 tienen una velocidad libre de 25 000 rpm; Las Amoladoras Modelos CD300 y CX300 tienen una velocidad libre de 30 000 rpm; Las Amoladoras Modelos CD350 tienen una velocidad libre de 32 000 rpm;cuando se operan a una presión de aire máxima de 90 psig (6,2 bar/620 kPa). Si se utiliza la herramienta a una presión de aire comprimido mayor, se causará exceso de velocidad.**
- **Empareje siempre el tamaño de pinza con el tamaño de vástago de accesorio.**
- **Inserte siempre el vástago de herramienta en la pinza un mínimo de 10 mm. Apriete la Tuerca de Pinza de manera segura para evitar que se salga el accesorio durante el funcionamiento de la Amoladora. Compruebe el apriete de Tuerca de Pinza antes de usar la Amoladora. Preste especial atención al hecho de que la velocidad permitida de un punto de montaje disminuye cuando se incrementa la longitud de eje entre extremo de pinza y punto de montaje (saliente).**

PARA PONER LA HERRAMIENTA EN SERVICIO

AVISO: Combinaciones incorrectas de rueda de rectificación, protector de rueda y velocidad de herramienta puedan resultar en lesionamientos. Las combinaciones correctas se especifican a continuación:

Número de Pieza del Protector	Tipo de Rueda	Diámetro de Rueda mm (in.)	Grosor Máximo de Rueda mm (in.)	Velocidad Máxima (rpm)
AG20–106–3	27	3 (76)	1/4 (6,4)	26 250

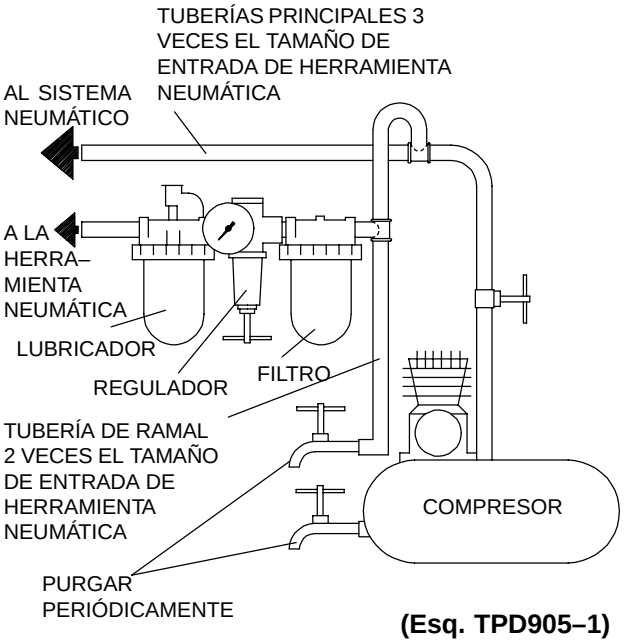
LUBRICACIÓN

Ingersoll–Rand Nº 10 **Ingersoll–Rand Nº 68**
Ingersoll–Rand Nº 50

Utilice siempre un lubricador de aire comprimido con estas herramientas. Recomendamos la siguiente unidad de Filtro–Lubricador–Regulador:

Para EE.UU. – Nº. C18–03–FKG0–28

Después de cada dos horas de uso, a menos que se use un lubricante de línea de aire comprimido, inyecte 1/2 –1 cc de Aceite Ingersoll–Rand Nº 1 en la Admisión de Aire.



(Esq. TPD905–1)

MONTAJE DEL ACCESORIO DE FRESADO

Para montar un accesorio de fresado CD–RK4 en una amoladora de la serie CD con pinza, proceda de la manera siguiente:

1. La tuerca de fijación tiene una rosca hacia la izquierda. Sujete la herramienta en un tornillo de banco con mordazas cubiertas de cobre con el eje hacia arriba y utilice la llave para tuercas de fijación o una llave de 1–3/16” para girar la tuerca hacia la derecha y sacarla.
2. Enrosque una tuerca nueva de fijación del motor en la carcasa y apriétela entre 27 y 34 Nm. Puesto que se trata también de una rosca hacia la izquierda, gire la tuerca hacia la izquierda para apretarla.
3. Introduzca una broca de fresado en la pinza. Si se quitaron la pieza de extremo y la tuerca de la pinza, móntelas y enrosque la tuerca en el cuerpo de la pinza, apretándola con los dedos.
4. Introduzca el pasador fijador a través del orificio en la tuerca de fijación del motor y gire la tuerca de la pinza hasta que el pasador fije la parte plana del cuerpo de la pinza.
5. Utilice el pasador fijador para sujetar el cuerpo de la pinza y apriete la tuerca de la pinza con una de las llaves para pinza.
6. Coloque el adaptador de la pieza de extremo sobre el conjunto de pinza y broca de fresado y enrósquelo en la tuerca de fijación del motor. Apriete el adaptador entre 2,7 y 4,0 Nm.
7. Instale el tornillo de bloqueo en el adaptador y utilice una llave exagonal de 5/64” para apretarlo entre 1,3 y 2,0 Nm.
8. Enrosque la contratuerca en el adaptador de la pieza de extremo.
9. Enrosque el conjunto de pieza de extremo en el adaptador y gire la contratuerca para apretarla contra el conjunto. Apriete la contratuerca entre 19,0 y 25,8 Nm.
10. Si se utiliza una guía de recorte, enrosque la guía en la pieza de extremo y apriete dicha guía entre 4,1 y 5,4 Nm.

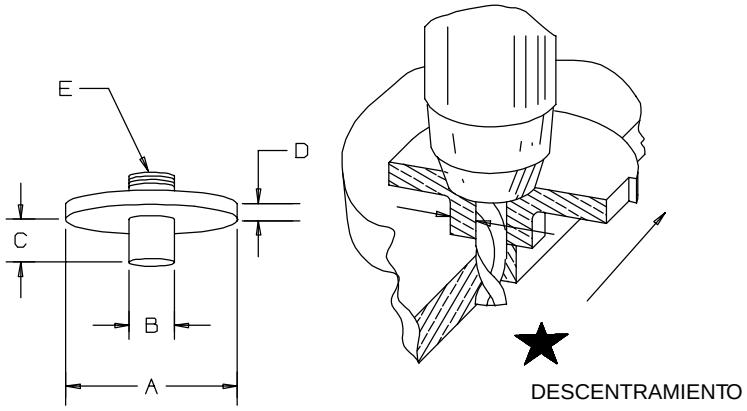
PARA PONER LA HERRAMIENTA EN SERVICIO

- CAMBIO DE LA BROCA DE FRESADO —

Para cambiar la broca de fresado, proceda de la forma siguiente.

1. Utilice una llave exagonal de 5/64” para aflojar el tornillo de bloqueo del adaptador. Desenrosque el adaptador ensamblado de la pieza de extremo y quítelo.
2. Introduzca el pasador fijador en el orificio del costado de la tuerca de fijación del motor y gire la tuerca de la pinza hasta que el pasador fije la parte plana del cuerpo de la pinza.
3. Utilice una de las llaves para pinza para aflojar la tuerca de la pinza. Extraiga la broca de fresado e introduzca la otra broca en la pinza. Apriete la tuerca de la pinza.
4. Quite el pasador fijador, coloque el adaptador ensamblado de la pieza de extremo sobre la broca y enrósquelo en la tuerca de fijación del motor. Apriete el adaptador entre 2,7 y 4,0 Nm.
5. Utilice una llave exagonal de 5/64” para apretar el tornillo de bloqueo del adaptador entre 1,3 y 2,0 Nm.

GUÍA DE RECORTE



Dimensiones de la guía de recorte

(Esq. TPD1208)

NUMERO DE PIEZA PARA PEDIDO	A	B	C	D	E
R120–128–2 (para mango de 1/4 pulg.)	1–1/2	3/8	3/8	1/8	1/2–20NF
R120–128–7 (para mango de 1/4 pulg.)	2–1/2	1/2	1/2	3/16	1/2–20NF

★ Nota: Descentramiento = 1/2 (dimensión “B” menos diámetro de broca de recorte.)

El siguiente equipo está disponible a un precio adicional y debe ser pedido por separado:

1. Conjunto de accesorio de fresado
   para modelos con broca de 1/4 pulg. de diámetro . . . . . Pieza Nº. CD–RK4
2. Guía de recorte (para accesorios de fresado)
   para mango de 1/4 pulg. . . . . Pieza Nº. R120–128–2
   para mango de 1/4 pulg. . . . . Pieza Nº. R120–128–7

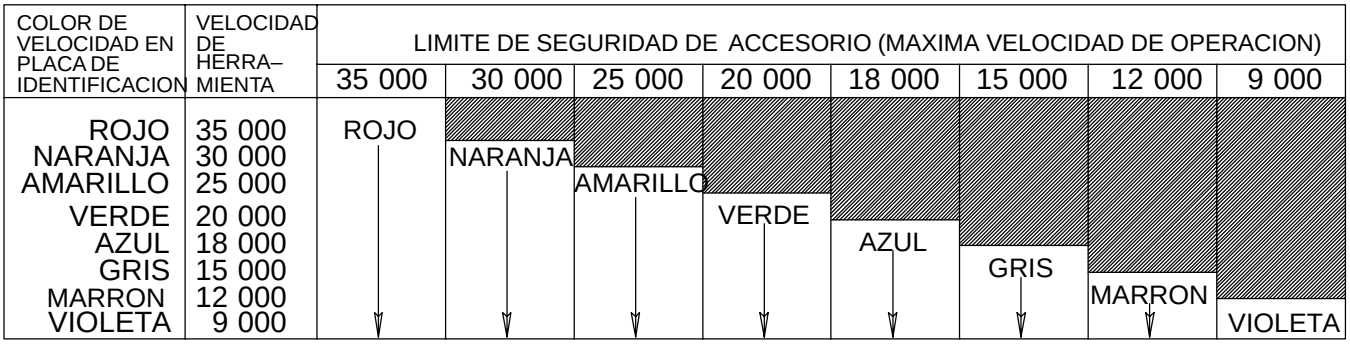
PARA PONER LA HERRAMIENTA EN SERVICIO

NUEVO SISTEMA DE CÓDIGO DE COLORES

Ingersoll–Rand ha introducido un nuevo sistema de codificación de colores diseñado para:

1. Simplificar la identificación de la velocidad de herramienta regulada por una codificación de colores correspondientes única.
2. Comunicar fácilmente los accesorios y almohadillas de refuerzo correspondientes a cada herramienta gracias a un sistema de codificación de colores en las almohadillas de repuesto o/y otros accesorios de Amoladora correspondientes.
3. La tabla que aparece más abajo muestra el sistema de codificación de colores entre Amoladora y accesorio.

(LEA DE IZQUIERDA A DERECHA)



(Esq. TPD1146–1)

ESPECIFICACIONES

Modelo	Velocidad/rpm	Pinza
		pulg. mm
CD350RG4, CD350RG4	32 000	1/4” 6
CD300RG4, CD300RG4	30 000	1/4” 6
CD250RG4, CD250RG4	25 000	1/4” 6
CD200RG4, CD200RG4	20 000	1/4” 6
CX300RG4, CX300RG4	30 000	1/4” 6
CX250RG4, CX250RG4	25 000	1/4” 6
CX200RG4, CX200RG4	20 000	1/4” 6
Modelo	**Velocidad/rpm**	**Cubremuela**
CD250RH63, CD250RH63	25 000	3” 76.2
CD200RH63, CD200RH63	20 000	3” 76.2

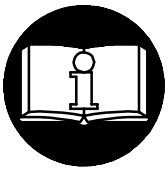
P

MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA RECTIFICADORES SÉRIE CD E CX

AVISO

Os Rectificadores Série CD e CX são concebidos para trabalho em espaços restritos na indústria de moldagem de metal, em estaleiros, fabricação de tubos, fabricação de matrizes e moldes e aplicações com espaço limitado. São especialmente bons onde condutas, canalizações, tubos etc. passam através de paredes ou armações. Estes pequenos Rectificadores são muito eficazes para rectificar pontos de soldadura e deixar uma acabamento polido.

A Ingersoll–Rand não pode ser responsabilizada pela modificação de ferramentas para aplicações para as quais não tenha sido consultada.



⚠ ADVERTÊNCIA

IMPORTANTES INFORMAÇÕES DE SEGURANÇA EM ANEXO.
LEIA ESTE MANUAL ANTES DE OPERAR A FERRAMENTA.
É RESPONSABILIDADE DA ENTIDADE PATRONAL PÔR AS INFORMAÇÕES CONTIDAS NESTE MANUAL À DISPOSIÇÃO DOS UTILIZADORES.
A NÃO OBEDIÊNCIA ÀS ADVERTÊNCIAS SEGUINTES PODERÁ RESULTAR EM LESÕES PESSOAIS.

COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

- **Sempre opere, inspeccione e mantenha esta ferramenta de acordo com o Código de Segurança do Instituto Americano de Padrões Nacionais para Ferramentas Pneumáticas Portáteis (ANSI B186.1).**
- **Para segurança, desempenho superior e durabilidade máxima das peças, opere esta ferramenta a uma pressão de ar máxima de 90 psig (6,2 bar/620 kPa) na admissão com uma mangueira de alimentação de ar com diâmetro interno de 5/16 pol. (8 mm).**
- **Desligue sempre a alimentação de ar e a mangueira de alimentação de ar antes de instalar, retirar ou ajustar qualquer acessório desta ferramenta, ou antes de fazer manutenção na mesma.**
- **Não utilize mangueiras de ar e acessórios danificados, puídos ou deteriorados.**
- **Certifique–se de que todas as mangueiras e acessórios são da dimensão correcta e que estão seguros firmemente. Consulte o Des. TPD905–1 para uma disposição de tubos típica.**
- **Utilize sempre ar limpo e seco a uma pressão máxima de 90 psig. Poeira, fumos corrosivos e/ou humidade excessiva podem destruir o motor de uma ferramenta pneumática.**
- **Não lubrifique a ferramenta com líquidos inflamáveis ou voláteis como querosene, gasóleo ou combustível para jactos.**
- **Não retire nenhum rótulo. Substitua os rótulos danificados.**

UTILIZAÇÃO DA FERRAMENTA

- **Use sempre protecção para os olhos ao operar ou fazer manutenção nesta ferramenta.**
- **Use sempre protecção auricular ao operar esta ferramenta.**
- **Mantenha as mãos, roupas soltas e cabelos longos afastados da extremidade rotativa da ferramenta.**
- **Esteja preparado e alerta para mudanças súbitas no movimento durante o arranque e o funcionamento de qualquer ferramenta mecânica.**
- **Mantenha o corpo numa posição equilibrada e firme. Não estique o corpo ao operar esta ferramenta. Podem ocorrer binários de reacção elevados à ou abaixo da pressão do ar recomendada.**
- **Os acessórios da ferramenta podem continuar a rodar por um curto período de tempo depois de soltar o regulador.**
- **A ferramentas pneumáticas podem vibrar durante a utilização. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser nocivos às suas mãos e braços. Pare de utilizar qualquer ferramenta se ocorrer desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de reiniciar a utilização.**
- **Use os acessórios recomendados pela Ingersoll–Rand.**
- **Esta ferramenta não é concebida para funcionar em atmosferas explosivas.**
- **Esta ferramenta não é isolada contra choque eléctrico.**

AVISO

A utilização de qualquer peça sobresselente que não seja Ingersoll–Rand genuína pode resultar em riscos para a segurança, em desempenho reduzido da ferramenta e mais necessidade de manutenção, e pode invalidar todas as garantias.

As reparações só devem ser feitas por pessoal autorizado e com formação adequada. Consulte o Representante Autorizado Ingersoll–Rand mais próximo.

Envie toda a correspondência ao Escritório ou Distribuidor Ingersoll–Rand mais próximo.

Impresso nos E.U.A.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

IDENTIFICAÇÃO DAS ETIQUETAS DE ADVERTÊNCIA

⚠ ADVERTÊNCIA

A NÃO OBEDIÊNCIA ÀS ADVERTÊNCIAS SEGUINTES PODERÁ RESULTAR EM LESÕES PESSOAIS.

⚠ ADVERTÊNCIA

Use sempre protecção para os olhos ao operar ou fazer manutenção nesta ferramenta.

⚠ ADVERTÊNCIA

Use sempre protecção auricular ao operar esta ferramenta.

⚠ ADVERTÊNCIA

Desligue sempre a alimentação de ar e a mangueira de alimentação de ar antes de instalar, remover ou ajustar um acessório desta ferramenta, ou antes de fazer manutenção na mesma.

⚠ ADVERTÊNCIA

As ferramentas pneumáticas podem vibrar durante a utilização. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser nocivos às suas mãos e braços. Pare de utilizar qualquer ferramenta se ocorrer desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de reiniciar a utilização.

⚠ ADVERTÊNCIA

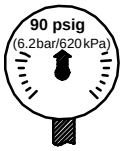
Não transporte a ferramenta pela mangueira.

⚠ ADVERTÊNCIA

Não utilize mangueiras de ar e acessórios danificados, puídos ou deteriorados.

⚠ ADVERTÊNCIA

Mantenha o corpo numa posição equilibrada e firme. Não estique o corpo ao operar esta ferramenta.



⚠ ADVERTÊNCIA

Opere a uma pressão de ar máxima de 90 psig (6,2 bar/ 620 kPa).

ADVERTÊNCIAS ESPECÍFICAS PARA O RECTIFICADOR

- **Não utilize esta ferramenta se a velocidade livre real ultrapassar o valor de rpm indicado na placa de identificação.**
- **Antes de montar uma mó abrasiva, após qualquer reparação da ferramenta ou sempre que o Rectificador for ser utilizado, verifique a velocidade livre do mesmo com um taquímetro para assegurar que a sua velocidade real a 90 psig (6,2 bar/620 kPa) não ultrapassa o valor de rpm gravado ou impresso na placa de identificação. Os rectificadores em uso numa tarefa devem ser verificados da mesma maneira, pelo menos uma vez em cada turno.**
- **Utilize sempre a Protecção de Mó Abrasiva Ingersoll–Rand recomendada e fornecida com o Rectificador.**
- **Não utilize uma mó abrasiva, rebarbador ou outro acessório que tenha uma velocidade máxima de funcionamento abaixo da velocidade livre do Rectificador no qual o acessório está a ser utilizado. Obedeça sempre ao valor máximo de rpm especificado nas anilhas das mós abrasivas.**
- **Inspeccione todas as mós abrasivas quanto a lascas ou rachas antes de as montar. Não utilize uma mó que esteja lascada, rachada, ou danificada de alguma maneira. Não utilize uma mó que tenha estado mergulhada em água ou em outro líquido qualquer.**
- **Certifique–se de que a mó abrasiva encaixa correctamente no veio. Não utilize buchas redutoras para adaptar uma mó abrasiva a um veio, a menos que a bucha seja fornecida e recomendada pelo fabricante da mó.**
- **Depois de montar uma mó abrasiva nova, segure o Rectificador sob uma bancada de aço ou dentro de uma peça fundida e ponha–o a funcionar durante pelo menos 60 segundos. Certifique–se de que não há ninguém dentro do plano de operação da mó abrasiva. Se uma mó estiver com defeito, montada incorrectamente ou for de tamanho ou velocidade errada, é geralmente nesta altura que ela falhará.**
- **Ao começar a trabalhar com uma mó fria, aplique–a ao trabalho lentamente, até a mó aquecer gradualmente. Faça contacto suave com o trabalho e evite qualquer acção instável ou pressão excessiva.**
- **Substitua sempre uma protecção de mó abrasiva danificada, curvada ou muito gasta. Não utilize uma protecção que tenha sido sujeita a uma falha de mó abrasiva.**
- **Certifique–se de que as flanges da mó têm pelo menos 1/3 do diâmetro da mó abrasiva, estão livres de entalhes, rebarbas e bordas afiadas. Utilize sempre as flanges de mó fornecidas pelo fabricante; nunca utilize uma flange improvisada ou uma anilha comum. Aperte a Flange da Mó firmemente.**
- **A abertura da protecção deve ficar voltada para longe do operador. O fundo da mó não deve ficar saliente além da protecção.**
- **Os Rectificadores da Série CD200 têm velocidade livre de 20.000 rpm; Os Rectificadores da Série CD250 e CX250 têm velocidade livre de 25.000 rpm; Os Rectificadores da Série CD300 e CX300 têm velocidade livre de 30.000 rpm e os Rectificadores da Série CD350 têm velocidade livre de 32.000 rpm, quando operados à pressão de ar de 90 psig (6,2 bar/620 kPa). A operação a uma pressão de ar mais elevada resultará em velocidade excessiva.**
- **Faça sempre a correspondência da dimensão do mandril com a dimensão da haste do acessório.**
- **Introduza sempre a haste da ferramenta pelo menos 10 mm no mandril. Aperte a Porca do Mandril firmemente para evitar que o acessório se desloque durante a operação do Rectificador. Verifique o aperto da Porca do Mandril antes de pôr o Rectificador em funcionamento. Preste atenção especial ao facto de que a velocidade permitida de um ponto montado é reduzida quando o comprimento do veio é aumentado entre a extremidade do mandril e o ponto montado (projecção).**

COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

ADVERTÊNCIA: Combinações incorrectas de mó abrasiva, protecção da mó abrasiva e velocidade da ferramenta podem resultar em lesões pessoais. As combinações correctas estão especificadas abaixo:

Número de Peça da Protecção	Tipo de Mó Abrasiva	Diâmetro da Mó pol. (mm)	Espessura Máxima da Mó pol. (mm)	Velocidade Máxima rpm
AG20–106–3	27	3 (76)	1/4 (6,4)	26.250

LUBRIFICAÇÃO

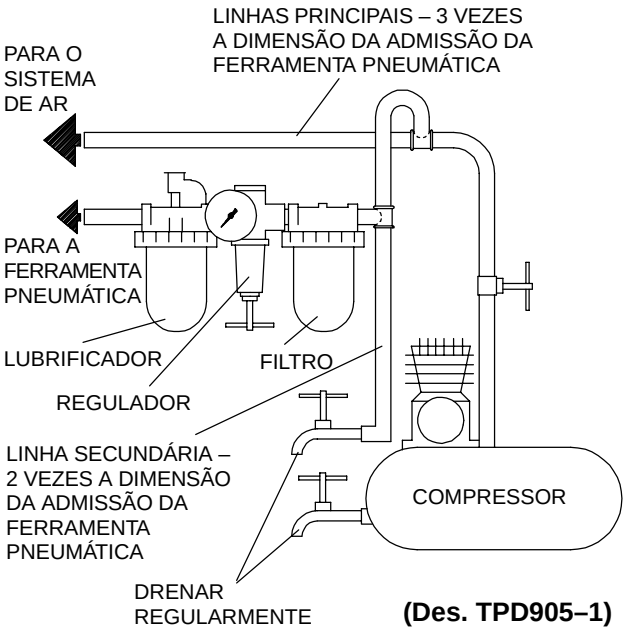
Ingersoll–Rand Nº 10 **Ingersoll–Rand Nº 68**
Ingersoll–Rand Nº 50

Utilize sempre um lubrificador de linha de ar com estas ferramentas.

Recomendamos a seguinte Unidade Filtro–Lubrificador–Regulador:

Para os E.U.A. – Nº C18–03–FGK0–28

Após cada duas horas de funcionamento, se não estiver a ser utilizado um lubrificador de linha de ar, injecte 1/2 a 1 cc de Óleo Ingersoll–Rand Nº 10 na Admissão do Ar.



(Des. TPD905–1)

MONTAGEM DO ACESSÓRIO DE FRESAGEM

Para montar um Acessório de Fresagem CD–RK4 num Rectificador Série CD que tenha um mandril, proceda como segue:

1. A porca de fixação tem a rosca à esquerda. Fixe a ferramenta nas garras revestidas de cobre de um torno de bancada com a haste para cima e, utilizando a chave da porca de fixação ou uma chave de porcas de 1–3/16", rode a porca para a direita para a remover.
2. Aparafuse a nova porca de fixação do motor sobre a carcaça e aperte a porca com um valor de binário entre 27 e 34 Nm. Esta também é uma rosca à esquerda, rode a porca para a esquerda para a apertar.
3. Introduza uma broca de fresagem no mandril. Se o bico e a porca do mandril tiverem sido removidos, instale–os e aparafuse a porca do mandril sobre o corpo do mesmo até ficar apertada à mão.
4. Introduza o pino de posicionamento através do furo da porca de fixação do motor e rode a porca do mandril até o pino posicionar na parte plana do corpo do mandril.
5. Utilizando o pino de posicionamento para segurar o corpo do mandril e uma das chaves de mandril na porca do mandril, aperte a porca.
6. Instale o adaptador do bico sobre o conjunto da broca e do mandril e aparafuse–o sobre a porca de fixação do motor. Aperte o adaptador com um valor de binário entre 2,7 e 4,0 Nm.
7. Instale o parafuso de aperto do adaptador no adaptador e, utilizando uma chave sextavada de 5/64", aperte–o com um valor de binário entre 1,3 e 2,0 Nm.
8. Aparafuse a contraporca sobre o adaptador do bico.
9. Aparafuse o conjunto do bico sobre o adaptador e depois aperte a contraporca contra o conjunto. Aperte a contraporca com um valor de binário entre 19,0 e 25,8 Nm.
10. Se for utilizado um guia de desbaste, aparafuse o guia sobre o conjunto do bico e aperte o guia com um valor de binário entre 4,1 e 5,4 Nm.

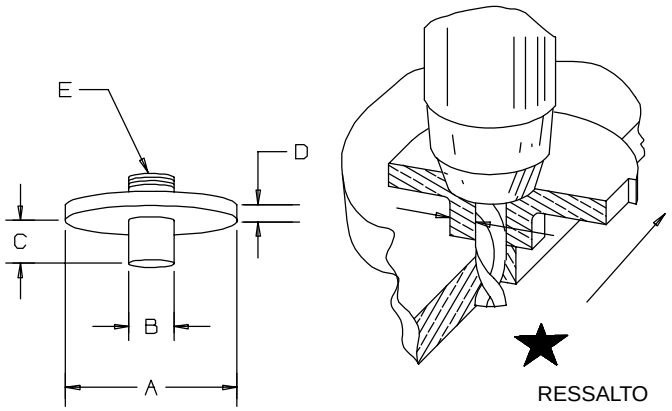
COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

MUDANÇA DA BROCA DE FRESAGEM

Para mudar uma broca de fresagem, proceda como segue:

1. Utilizando uma chave sextavada de 5/64”, desaperte o parafuso de aperto do adaptador. Desaperte e remova o adaptador do bico montado.
2. Introduza o pino de posicionamento através do furo do lado da porca de fixação do motor e rode a porca do mandril até o pino posicionar na parte plana do corpo do mandril.
3. Utilizando uma das chaves de mandril, afrouxe a porca do mandril. Remova a broca de fresagem e introduza uma nova broca no mandril. Aperte a porca do mandril.
4. Remova o pino de posicionamento e instale o adaptador do bico montado sobre a broca e aparafuse–o sobre a porca de fixação do motor. Aperte o adaptador com um valor de binário entre 2,7 e 4,0 Nm.
5. Utilizando uma chave sextavada de 5/64”, aperte o parafuso de aperto do adaptador com um valor de binário entre 1,3 e 2,0 Nm.

GUIA FINAL DE APERTO



Dimensões da Guia Final de Aperto

(Desenho TPD1208)

NÚMERO DE REFERÊNCIA PARA PEDIDO	A	B	C	D	E
R120–128–2 (para haste de 1/4”)	1–1/2	3/8	3/8	1/8	1/2–20NF
R120–128–7 (para haste de 1/4”)	2–1/2	1/2	1/2	3/16	1/2–20NF

★ Nota : Ressalto = 1/2 (Dimensão “B” menos o diâmetro do acessório da guia final de aperto).

O seguinte equipamento está disponível por um custo extra e deve ser encomendado separadamente :

1. Arranjo do Acoplamento do Acessório
   para modelos que utilizem bites de diâmetro de 1/4 ” . . . . . Referência No. CD–RK4
2. Guia Final de Aperto (para Acoplamento do Acessáorio)
   para haste de 1/4” . . . . . Referência No. R120–128–2
   para haste de 1/4” . . . . . Referência No. R120–128–7

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

NOVO GUIA DE COMBINAÇÃO DE CORES ENTRE A ESMERILADORA E O ACESSÓRIO

A Ingersoll–Rand é pioneira no desenho de um novo sistema de código de cores para :

1. Simplificar a identificação da velocidade aferida de uma ferramenta através de uma única combinação de cores correspondentes.
2. Comunicam facilmente os painéis traseiros e acessórios apropriados para cada ferramenta através de um sistema de códigos de combinação de cores nos paineis traseiros e/ou acessórios correspondentes à Esmeriladora.
3. A tabela abaixo demonstra o sistema de códigos de cores correspondentes à Esmeriladora e ao Acessório.

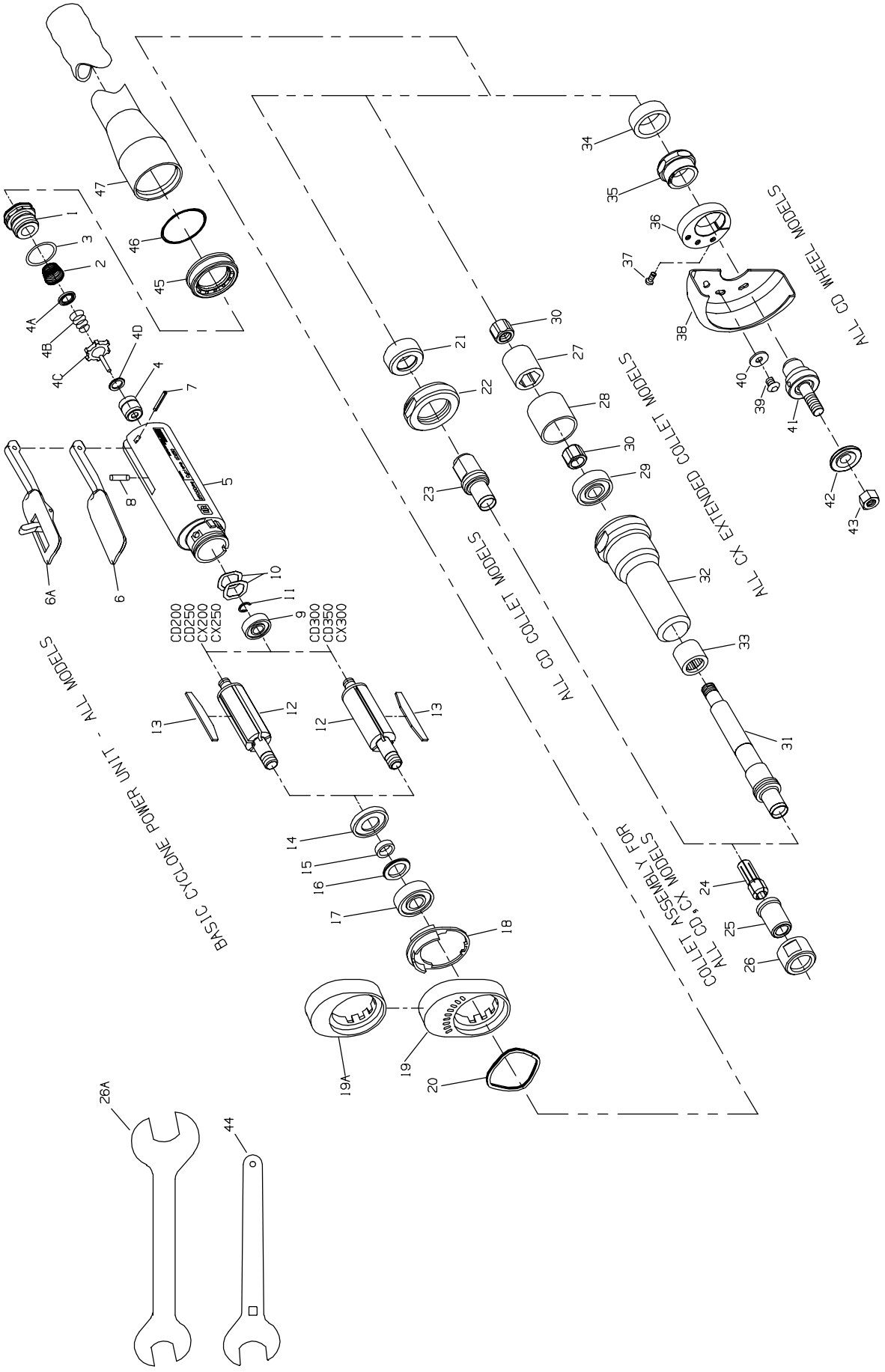
(LEIA DA ESQUERDA PARA A DIREITA)

COR DA VELOCIDADE NA PLACA DE IDENTIFICAÇÃO	VELOCIDADE AFERIDA DA FERRAMENTA	ACESSÓRIO DE INTERVALO SEGURO (MÁXIMA VELOCIDADE DE OPERAÇÃO)							
		35,000	30,000	25,000	20,000	18,000	15,000	12,000	9,000
VERMELHA	35,000	VERMELHA							
LARANJA	30,000		LARANJA						
AMARELA	25,000			AMARELA					
VERDE	20,000				VERDE				
AZUL	18,000					AZUL			
CINZA	15,000						CINZA		
MARRON CLARO	12,000							MARRON CLARO	
VIOLETA	9,000								VIOLETA

(Desenho TPD1146–1)

ESPECIFICAÇÕES

Modelo	Velocidade/rpm	Mandril	
		pol.	mm
CD350RG4, CD350RG4	32.000	1/4”	6
CD300RG4, CD300RG4	30.000	1/4”	6
CD250RG4, CD250RG4	25.000	1/4”	6
CD200RG4, CD200RG4	20.000	1/4”	6
CX300RG4, CX300RG4	30.000	1/4”	6
CX250RG4, CX250RG4	25.000	1/4”	6
CX200RG4, CX200RG4	20.000	1/4”	6
Modelo	**Velocidade/rpm**	**Protecção da Mó**	
		pol	**(mm)**
CD250RH63, CD250RH63	25.000	3”	76,2
CD200RH63, CD200RH63	20.000	3”	76,2



(Dwg. TPA1267–7)

		PART NUMBER FOR ORDERING	
		Common parts for ALL CD and CX Grinders	
	1	Inlet Assembly	LG1–A465A
	2	Inlet Screen	R1602–61
•	3	Inlet Seal	85H–167
		Throttle Valve Kit	LG1–K300
	4	Throttle Valve Case	LG1–300A
	4A	Throttle Valve Spring Seat	LG1–592
	4B	Throttle Valve Spring	7L–51
	4C	Throttle Valve	AG210–302
	4D	Throttle Valve Seat	LG1–303
	5	Motor Housing	LG1–40
	6	Throttle Lever	LG1–273
	6A	Locking Throttle Lever Assembly (standard equipment on models ending in C, L, MC or ML; optional for all others)	LG1–A400
	*	Lever Lock	LG1–402
	*	Lock Spring	LG1–405
	*	Lock Pin	5UT–757
	7	Throttle Lever Pin	61H–120
	8	Throttle Valve Plunger	LG1–191
	9	Rear Rotor Bearing	DG230–22
•	10	Rear Rotor Bearing Spacer (2)	DG20–278
•	11	Rear Rotor Bearing Retainer	LG1–118
	12	Rotor	
		for CD300, CX300 and CD350 (3 slots)	LG1–53–3
		for all others (5 slots)	LG1–53–5
•	13	Vane Packet (set of 5 Vanes)	LG1–42–5
	14	Front End Plate	LG1–11

		PART NUMBER FOR ORDERING	
	15	Front End Plate Spacer	DG10–65–5
•	16	Front Seal Cup	LG1–32
	17	Front Rotor Bearing	LG1–24
	18	Flow Ring	
		for CD200 and CX200 (20 000 rpm) (grey)	LG1–103–0
		for CD250 and CX250 (25 000 rpm) (brown)	LG1–103–1
		for CD300 and CX300 (30 000 rpm) (khaki)	LG1–103–2
		for CD350 (32 000 rpm) (red)	LG1–103–3
	19	High Profile Flange	LG1–23
#	19A	Low Profile Concentric Flange (for all models ending in C or MC)	LG1R–23
	20	Flange Clamp	LG1–29
		Additional parts for all CD collet models	
	21	Clamp Spacer	LG1–46
	22	Clamp Nut	LG1–27
	23	Collet Body	LG1–290
		Additional parts for all collet models	
	24	Collet	
		6 mm (–EU models)	DG110–700–6mm
		1/4" (standard domestic)	DG110–700–G4
		1/8" (available at extra price)	DG110–700–G2
	25	Nosepiece	AG210–698A
	26	Collet Nut	AG210–699A
	26A	Collet Wrench (11/16" x 7/16") (included with all models) (2)	DG20–69A

* Not illustrated.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

⚠ WARNING

 # Always install a Locking Throttle Lever Assembly (6A) on a tool with a Low Profile Concentric Flange (19A). Do not equip a tool with a standard non–locking Throttle Lever (6) and Low Profile Concentric Flange. This can allow the tool to continue to run if dropped or set down.

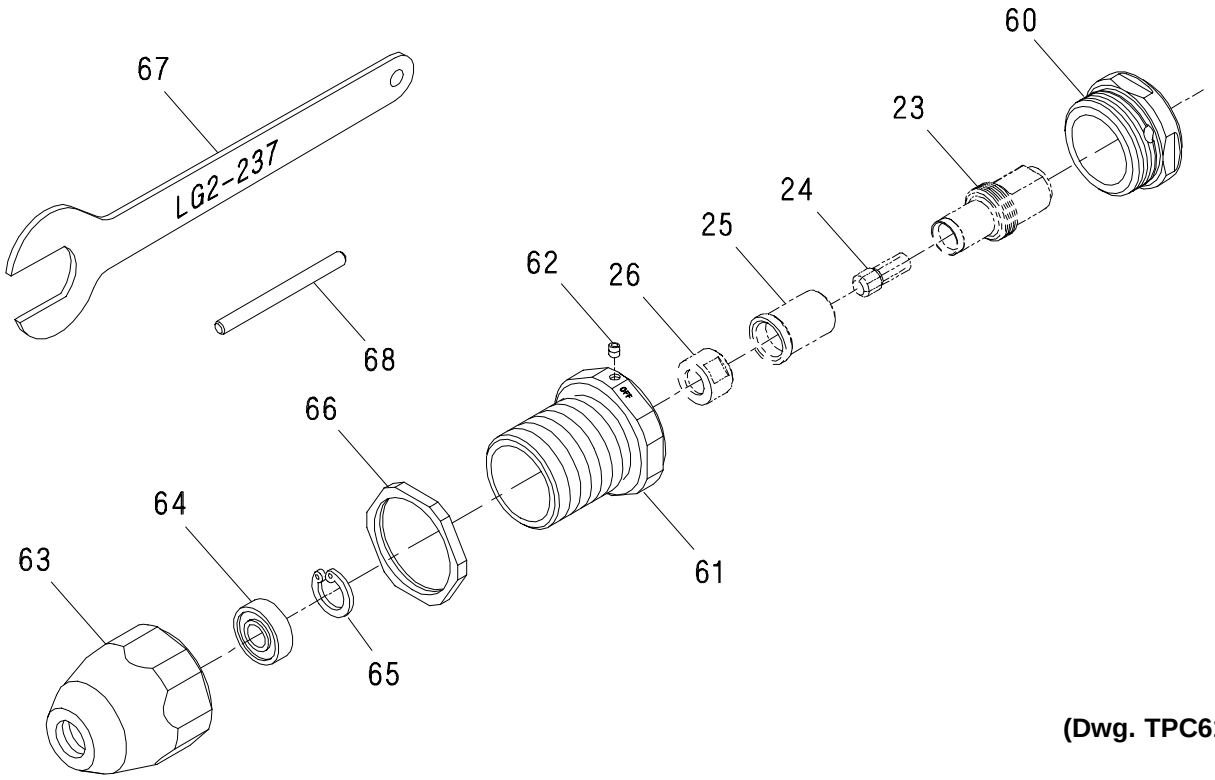
		PART NUMBER FOR ORDERING
		Additional parts for all extended CX collet models
	27	Arbor Coupling LE1–304
	28	Clamp Sleeve LE1–276
	29	Rear Arbor Bearing AG210–24
	30	Arbor Bearing Nut (2) LE1–85
	31	Extension Arbor LE1–4A–3
	32	Arbor Housing Assembly LE1–A20–3
	33	Front Arbor Bearing AGS241–511
		Additional parts for all CD wheel models
	34	Clamp Spacer LG1–46H63
	35	Clamp Nut LG1–28
	36	Guard Adapter Assembly LA1–A710
	37	Guard Adapter Screw 804–634
	38	Wheel Guard AG20–106–3
	39	Wheel Guard Mounting Screw (3) LA1–667
	40	Mounting Screw Washer (3) R2–320
	41	Straight Wheel Adapter LG1–4–H63
	42	Wheel Flange DEG31–16
	43	Flange Nut 23–697
	44	Clamp Nut Wrench (1–3/16”) LA2–253
		Accessories for all CD and CX models
♦		Piped–Away Exhaust Kit LG1–K284
+	45	Exhaust Hose Adapter LG1–284
+	46	Exhaust Hose Retainer LG1–67
+	47	Exhaust Hose 3RL–284

	PART NUMBER FOR ORDERING	
*	Variable Speed Control	LG1–A1015
*	Warning Label	
	for models ending in H63–EU	EU–63–99
	for all other models ending in –EU . . .	EU–99
	for all other models	LG1–99
*	Nameplate	
	for CD200 models ending in –EU	LG120–EU–301
	for all other CD200 models	LG120–301
	for CD250 models ending in –EU	LG125–EU–301
	for all other CD250 models	LG125–301
	for CD300 models ending in –EU	LG130–EU–301
	for all other CD300 models	LG130–301
	for CD350 models ending in –EU	LG135–EU–301
	for all other CD350 models	LG135–301
	for CX200 models ending in –EU	LE120–EU–301
	for all other CX200 models	LE120–301
	for CX250 models ending in –EU	LE125–EU–301
	for all other CX250 models	LE125–301
	for CX300 models ending in –EU	LE130–EU–301
	for all other CX300 models	LE130–301

* Not illustrated.

♦ When ordering a Piped–Away Exhaust Kit, make certain the wrench hex on the Inlet Assembly of your tool is threaded. If it is **NOT** threaded, order a new Inlet Assembly (Part No. LG1–A465A).

\+ Standard equipment on models ending in M, MC or ML and ALL Front Exhaust models; optional equipment on all other models.



(Dwg. TPC612)

PART NUMBER FOR ORDERING

	Router Attachment Assembly (for 1/4”diameter bits)	CD–RK4
60	Motor Clamp Nut	LG1R–27
61	Nosepiece Adapter	LG1R–124
62	Adapter Lock Screw	0E9–561
63	Nosepiece Assembly	LG2–A125–1
64	Nosepiece Bearing	TD200–127
65	Bearing Retaining Ring	RXA21–343
66	Locknut	R120–126
67	Locknut Wrench	LG2–237
68	Sprag Pin	244–302

⚠ WARNING

Always wear eye protection when operating or performing maintenance on this tool.

Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

LUBRICATION

Whenever one of these Grinders is disassembled for overhaul or replacement of parts, lubricate as follows:

1. Always wipe the Vanes (13) with a light film of oil before inserting them into the vane slots.
2. Inject 0.5 to 1.0 cc of Ingersoll–Rand No. 10 Oil into the Air Inlet Assembly (1) after assembly.

DISASSEMBLY

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. When grasping a tool or part in a vise, always use leather–covered or copper–covered vise jaws to protect the surface of the part or tool and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O–rings for replacement.
5. Do not press any needle bearing from a part unless you have a new needle bearing on hand for installation. Needle bearings are always damaged during the removal process.

Disassembly of the Motor

Steps common to ALL CD collet models

1. Using one Collet Wrench (26A) to hold the Collet Body (23) from turning, use the other Collet Wrench to unscrew and remove the Collet Nut (26).
2. Remove the Nosepiece (25) and the Collet (24).
3. Grasp the tool in copper–covered or leather–covered vise jaws with the spindle upward and using a 1–3/16” wrench, unscrew and remove the Clamp Nut (22). This is a **left–hand thread** and must be rotated **clockwise.**
4. Remove the Clamp Spacer (21) and the Flange Clamp (20).
5. Pull the Flange (19) and Flow Ring (18) off the front of the Motor Housing (5).
6. Grasp the Collet Body and pull the assembled motor out of the Motor Housing. Remove the Motor Housing from the vise and remove the two Rear Rotor Bearing Spacers (10) from the bottom of the Housing.
7. Remove the Vanes (13) from the Rotor (12).
8. Grasp the Rotor in copper–covered or leather–covered vise jaws with the Collet Body upward. Using the Collet Body Wrench, unscrew and remove the Collet Body.

Steps common to ALL CD wheel models

1. Using an adjustable spanner wrench in one of the holes in the Straight Wheel Adapter (41) and a 9/16” wrench on the Flange Nut (43), unscrew and remove the Flange Nut.
2. Remove the Wheel Flange (42) and the grinding wheel.
3. Grasp the tool in copper–covered or leather–covered vise jaws with the spindle upward and using the Clamp Nut Wrench (44), unscrew the Clamp Nut (35). This is a **left–hand thread** and must be rotated **clockwise**.
4. Grasp the Wheel Guard (38) and pull the assembled motor out of the Motor Housing (5). Remove the Motor Housing from the vise and remove the two Rear Rotor Bearing Spacers (10) from the bottom of the Housing.
5. Remove the Vanes (13) from the Rotor (12).
6. Grasp the Rotor in copper–covered or leather–covered vise jaws with the Wheel Guard upward. Using an adjustable spanner wrench, unscrew and remove the Wheel Adapter (41).
7. Using a 9/16” hex wrench, loosen the Guard Adapter Screw (37) and remove the Guard Adapter Assembly (36) from the Clamp Nut.
8. Remove the Flange Clamp (20) and pull the Flange (19) and Flow Ring (18) off the front of the Motor Housing.

Steps common to ALL CX wheel models

1. Using one Collet Wrench (26A) to hold the Extension Arbor (31) from turning, use the other Collet Wrench to unscrew and remove the Collet Nut (26).
2. Remove the Nosepiece (25) and the Collet (24).
3. Grasp the tool in copper–covered or leather–covered vise jaws with the spindle upward and using a 1–3/16” wrench, unscrew and remove the Arbor Housing (32). This is a **left–hand thread** and must be rotated **clockwise.**
4. Remove the Clamp Sleeve (28) and Arbor Coupling (27).

5. Using one Collet Wrench to hold the Extension Arbor (31) and a 7/16” socket, unscrew the Arbor Bearing Nut (30).
6. Grasp the collet end of the Arbor and pull it from the Arbor Housing Assembly (32) being careful not to allow the Rear Arbor Bearing (29) to fall from the Housing. Remove the Bearing from the Housing.
7. If the Front Arbor Bearing (33) must be replaced, press it from the Arbor Housing.
8. Pull the Flange (19) and Flow Ring (18) off the front of the Motor Housing (5).
9. Grasp the Arbor Bearing Nut on the rotor shaft and pull the assembled motor out of the Motor Housing. Remove the Motor Housing from the vise and remove the two Rear Rotor Bearing Spacers (10) from the bottom of the Housing.
10. Remove the Vanes (13) from the Rotor (12).
11. Grasp the Rotor in copper–covered or leather–covered vise jaws with the Arbor Bearing Nut upward. Using a 7/16” wrench, unscrew and remove the Arbor Bearing Nut.

Steps common to ALL models

1. If the Front Rotor Bearing (17) must be replaced, support the Front End Plate (14) between two blocks on the table of an arbor press. Place the blocks as close to the body of the Rotor as possible and press the Rotor from the Bearing and End Plate. Remove the Front End Plate Spacer (15) and Front Seal Cup (16) from the hub of the Rotor.
2. If the Rear Rotor Bearing (9) must be replaced, use snap ring pliers to remove the Rear Rotor Bearing Retainer (11).
3. Using a bearing puller, pull the Rear Rotor Bearing off the hub of the Rotor.

Disassembly of the Inlet and Throttle

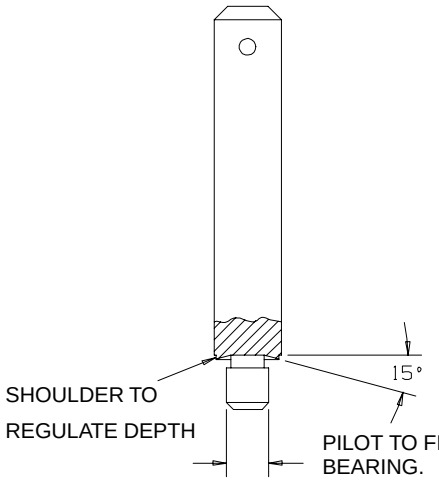
1. Using a 3/4” wrench, unscrew and remove the Inlet Assembly (1).
2. Remove the Inlet Seal (3) and Inlet Screen (2) from the Inlet.
3. Remove the Throttle Valve Spring Seat (4A), Throttle Valve Spring (4B) and Throttle Valve (4C) from the Motor Housing (5).
4. If the Throttle Valve Seat (4D) must be replaced, insert a hooked tool through the central opening of the Seat and, catching the underside of the Seat, pull it from the Housing.
5. If the Throttle Valve Case (4) must be replaced, insert two hooked tools through the central opening of the Case approximately 180 degrees apart and, catching the underside of the Case, pull it from the Housing.
6. Press the Throttle Lever Pin (7) from the Housing and remove the Throttle Lever (6). Remove the Throttle Valve Plunger (8).

ASSEMBLY

General Instructions

1. Always press on the **inner** ring of a ball–type bearing when installing the bearing on a shaft.
2. Always press on the **outer** ring of a ball–type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather–covered or copper–covered vise jaws. Take extra care not to damage threads or distort housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in clean solution and dry with a clean cloth. **Sealed or shielded bearings should not be cleaned.** Work grease into every open bearing before installation.
6. Apply a film of o–ring lubricant to every o–ring before installation.
7. Unless otherwise noted, always press on the stamped end of a needle bearing when installing a needle bearing into a recess. Use a bearing inserting tool similar to the one shown in Dwg. TPD786.

Needle Bearing Inserting Tool



(Dwg. TPD786)

Assembly of the Throttle and Inlet

1. Insert the Throttle Valve Plunger (8) into the Motor Housing (5).
2. Position the Throttle Lever (6) on the Motor Housing and using an arbor press, press the Throttle Lever Pin (7) into the Housing and Lever. The Lever will retain the Plunger in the Housing.
3. If the Throttle Valve Case (4) was removed, lubricate the outside and the throttle stem end of the Case with O–ring lubricant. Using a wooden dowel, push the Case, open end trailing, into the Motor Housing.
4. If the Throttle Valve Seat (4D) was removed, use a 5/8" wooden dowel with a flat end to push the Seat into the Motor Housing.
5. Push the small end of the Throttle Valve Spring (4B) onto the end of the Throttle Valve (4C) with the short stem until the Spring snaps into position around the hub and remains there. Install the dish end of the Throttle Valve Spring Seat (4A) onto the large end of the Throttle Valve Spring.
6. Holding the Housing with the Lever downward, make sure the Plunger is out of the way and insert the assembled Throttle Valve, long stem end leading, into the housing recess.
7. Push the Inlet Screen (2), closed end leading, into the bushing of the Inlet Assembly (1). After moistening the Inlet Seal (3) with o–ring lubricant and being careful not to nick the Seal on the threads of the Inlet, install the Seal on the Inlet.
8. Thread the Inlet Assembly into the Housing and tighten it between 20 to 25 ft–lb (27.1 to 33.9 Nm) torque.

Assembly of the Motor

Steps common to ALL models

NOTICE

When installing a Rear Rotor Bearing, press the Rotor Bearing onto the shaft with the shielded side of the Bearing leading (shield toward the Rotor).

1. If the Rear Rotor Bearing (9) was removed, stand the Rotor (12) upright on the table of an arbor press with the threaded end downward. Make sure the threaded end passes through a hole drilled in a block so that the Rotor rests against the large rotor body. Press the Rear Rotor Bearing onto the hub of the Rotor.
2. Install the Rear Rotor Bearing Retainer (11) in the groove on the hub of the Rotor.
3. Install the Front End Plate (14), counterbored end trailing, onto the threaded hub of the Rotor. Press the Front Seal Cup (16), dish end trailing, onto the end of the Front End Plate Spacer (15) that has the central hole beveled. Continue pressing until the dish end is flush with the end of the Spacer. Place the assembled Spacer, Seal Cup trailing, onto the threaded hub of the Rotor. Make sure the Seal Cup enters the recess in the Front End Plate.

NOTICE

Be aware that in the next step, the Front Rotor Bearing is a double flush ground bearing and must be installed in a specific manner. The end of the Bearing with a black stain or hash marks must be away from the Spacer.

4. Stand the Rotor on the table of an arbor press with the threaded end upward and press the Front Rotor Bearing (17) onto the hub of the Rotor.
5. Grasp the assembled Rotor in copper–covered or leather–covered vise jaws with the threaded rotor hub upward.
6. Inject approximately 3/4 cc of Ingersoll–Rand No. 68 Grease into the small recess at the bottom of the motor housing bore. Drop the two Rear Rotor Bearing Spacers (10) into the bottom of the motor housing bore.
7. Assemble the Flow Ring (18) with the Flange (19) before installing the Flange on the Housing. Mate the Flow Ring to the end of the Flange without perforations. The positioning of the Flow Ring is dictated by the desired exhaust. To set the tool exhaust, proceed as follows:
   a. **For front exhaust tools,** align the notched projection on the edge of the Flow Ring with the letter "F" on the Housing.
   b. **For rear exhaust tools,** align the notched projection on the edge of the Flow Ring with the letter "R" on the Housing.
8. Install the assembled Flange, Flow Ring leading, onto the front of the Motor Housing.
9. Position the Flange Clamp (20) against the Flange.

Steps common to ALL CX collet models

1. Thread the Arbor Bearing Nut (30) onto the Rotor (12) and using a torque wrench, tighten the Nut between 14 and 19 ft–lb (19 and 26 Nm) torque.
2. Wipe each Vane (13) with a light film of oil and insert a Vane into each vane slot in the Rotor.
3. Grasp the Arbor Bearing Nut and insert the assembled Rotor into the Motor Housing (5).
4. Grasp the Motor Housing in copper–covered or leather–covered vise jaws with the Arbor Bearing Nut upward. Do not distort the Housing.

5. Lubricate the Arbor Coupling with approximately 1 cc of Ingersoll–Rand No. 68 Grease and position the Coupling over the Arbor Bearing Nut. Position the Clamp Sleeve (28) over the Arbor Coupling against the Front Rotor Bearing.
6. If the Front Arbor Bearing (33) was removed, stand the Arbor Housing (32) on the table of an arbor press with the small end upward. Using a bearing inserting tool similar to the one shown on page 10 and with the bearing identification marks trailing, press the Front Arbor Bearing into the Housing until the trailing end of the Bearing is between 0.135" and 0.145" (3.4 and 3.7 mm) below the edge of the Housing. Work approximately 0.5 cc of Ingersoll–Rand No. 68 Grease into the needle roller cage element of the Bearing.
7. Insert the Extension Arbor (31), collet end trailing, through the Front Arbor Bearing from the collet end of of the Arbor Housing.
8. Place the Rear Arbor Bearing (29) on the arbor hub inside the rear of the Housing. Thread the Arbor Bearing Nut, threaded end trailing, onto the rear of the Extension Arbor. Using a socket on the Arbor Bearing Nut and a torque wrench on the Collet Body, tighten the joint between 14 and 19 ft–lb (19 and 26 Nm) torque.
9. Thread the Arbor Housing onto the Motor Housing and tighten the joint between 20 and 25 ft–lb (27 and 34 Nm) torque. This is a **left–hand thread**. Turn **counterclockwise** to tighten.
10. Insert the Collet (24) into the Extension Arbor (31) and slide the Nosepiece (25) over the Collet. Thread the Collet Nut (26) onto the Arbor and use the two Collet Wrenches (26A) to tighten the Nut to the Arbor.

Steps common to ALL CD Wheel models

1. Position the Guard Adapter Assembly (36) on the long hub of the Clamp Nut (35) and, using a 9/64" hex wrench on the Guard Adapter Screw (37), snug the Assembly onto the Clamp Nut.
2. If the Wheel Guard (38) was removed from the Guard Adapter Assembly, attach the Guard using the three Wheel Guard Mounting Screw (39) and Washers (40). Tighten the Screws between 2 and 2–3/4 ft–lb (2.7 and 3.7 Nm) torque.
3. Position the assembled Guard Adapter over the threaded rotor hub in the vise and insert the Straight Wheel Adapter (41) through the Clamp Nut and thread it onto the threaded rotor hub. Tighten the Wheel Adapter between 14 and 19 ft–lb (19 and 26 Nm) torque.
4. Wipe each Vane (13) with a light film of oil and insert a Vane into each vane slot in the Rotor.
5. Grasp the Wheel Guard and insert the assembled Rotor into the Motor Housing (5).
6. Grasp the Motor Housing in copper–covered or leather–covered vise jaws with the Wheel Guard upward. Do not distort the Housing.
7. Thread the Clamp Nut (35) onto the Motor Housing and tighten the joint between 20 and 25 ft–lb (27 and 34 Nm) torque. This is a **left–hand thread.** Turn **counterclockwise** to tighten.
8. After positioning the Guard to the proper position, tighten the Guard Adapter Screw between 2 and 2–3/4 ft–lb (2.7 and 3.7 Nm) torque.
9. Install a wheel, the Wheel Flange (42) and Flange Nut (43) on the Wheel Adapter. Use an adjustable spanner wrench on the Adapter and a 9/16" wrench on the Flange Nut to tighten the Nut.

Steps common to ALL CD collet models

1. Thread the Collet Body (23) onto the Rotor (12) and using a torque wrench, tighten the Collet Body between 14 and 19 ft–lb (19 and 26 Nm) torque.
2. Wipe each Vane (13) with a light film of oil and insert a Vane into each vane slot in the Rotor.
3. Grasp the Collet Arbor and insert the assembled Rotor into the Motor Housing (5).
4. Grasp the Motor Housing in copper–covered or leather–covered vise jaws with the Collet Body upward. Do not distort the Housing.
5. Thread the Clamp Nut (22) onto the Motor Housing and tighten the joint between 20 and 25 ft–lb (27 and 34 Nm) torque. This is a **left–hand thread**. Turn **counterclockwise** to tighten.
6. Insert the Collet (24) into the Collet Body and slide the Nosepiece (25) over the Collet. Thread the Collet Nut (26) onto the Collet Body and use the two Collet Wrenches (26A) to tighten the Nut to the Collet Body.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power or low free speed	Insufficient air pressure	Check air line pressure at the Inlet of the tool. It must be 90 psig (6.2 bar/620 kPa).
	Clogged muffler elements	Disassemble the tool and agitate bare Motor Housing and Flange in clean suitable cleaning solution. If elements cannot be cleaned, replace the Motor Housing and/or the Flange.
	Plugged Inlet Screen	Clean the Inlet Screen with a clean, suitable cleaning solution or replace the Screen.
	Worn or broken Vanes	Install a **complete** set of new Vanes.
	Loose Clamp Nut or Arbor Housing	Tighten the Nut or Housing between 20 and 25 ft–lb (27 and 34 Nm) torque.
	Worn or broken Motor Housing	Replace the Motor Housing.
	Internal air leakage in the Motor Housing indicated by high air consumption/low speed or air leaking out the front and rear exhaust simultaneously.	Replace the Motor Housing.
	Grit buildup under the Throttle Lever restricting full Throttle Valve Plunger movement	Remove the Throttle Lever and clean the groove in the Motor Housing.
	Bent stem on Throttle Valve	Replace the Throttle Valve.
	Front Seal Cup dragging against the shield of the Front Rotor Bearing	Re–position the Front Seal Cup.
Excessive runout	Bent rotor hub	Replace the Rotor.
	Loose Collet Nut	Tighten the Collet Nut until snug.
	Worn or damaged Collet or Collet Nut	Replace the damaged component and re–test.
	Worn or damaged Front Rotor Bearing	Replace the Front Rotor Bearing.
	Bent, worn or broken Extension Arbor on CX models	Replace the Extension Arbor if, when mounted between centers, the runout on the arbor body exceeds 0.002” T.I.R. or 0.0005” T.I.R. on the bearing mounting diameters.
	Worn or damaged Front Arbor Bearing on CX models	Replace the Front Arbor Bearing.
Scoring of End Plate	Worn Front End Plate Spacer or Front End Plate	Install a new Front End Plate Spacer and Front End Plate.
	Worn Front Rotor Bearing	Install a new Front Rotor Bearing
Leaky Throttle Valve	Dirt accumulation on Throttle Valve or Throttle Valve Seat	Disassemble, inspect and clean parts.
	Worn Throttle Valve or Throttle Valve Seat	Replace the Throttle Valve and/or Throttle Valve Seat.
	Excessive dirt build–up beneath the Throttle Lever	Clean out the slot area.
	Bent Throttle Valve Plunger	Replace the Plunger.
Exhausts at wrong direction	Incorrect orientation of the Flow Ring	Reverse the face of the Flow Ring against the Motor Housing.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Front Rotor Bearing runs hot	Incorrect installation of the Front Seal Cup	Reposition the Front Seal Cup flush with the face of the Front End Plate Spacer.
	Front End Plate Spacer rubbing the bore of the Front End Plate	Replace the Front End Plate and Front End Plate Spacer combination.
	Incorrect Front Rotor Bearing installation orientation	If a black stain or black hash–marks are not visible on the face of the Bearing when it is assembled with the End Plate and Rotor, the Bearing is installed backwards. If possible, remove the Bearing and install it correctly or replace the Bearing.
Slow tool idle	Bent or leaky Throttle Valve	Replace the Throttle Valve.
Air leakage around Flow Ring	Damaged, mutilated or missing Flange Clamp	Replace the Flange Clamp.
	Damaged Flow Ring	Replace the Flow Ring.
Rough Operation/Vibration	Improper lubrication or dirt build up	Disassemble the tool and clean it in a clean, suitable cleaning solution. Assemble the tool and inject 3 cc of the recommended oil into the Inlet and run the Grinder long enough to coat the internal parts with the oil.
	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Replace the worn or broken Bearings. Examine the Front End Plate, Front End Spacer, Front Seal Cup and Rear Rotor Bearing Spacers and replace any damaged parts. If the rear end plate is damaged, replace the Rotor.
	Worn or broken Rear or Front Arbor Bearing in CX models	Replace the worn or broken Bearing.
	Dirt contaminated Front Arbor Bearing in CX models	Replace the Bearing.
	Bent, worn or broken Extension Arbor on CX models	Replace the Extension Arbor if, when mounted between centers, the runout on the arbor body exceeds 0.002” T.I.R. or 0.0005” T.I.R. on the bearing mounting diameters.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.