

Hypertherm®

MAXPRO200™

Extreme Bevel Cut Charts



811270 – REVISION 0

ENGLISH



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For your records

Serial number: _____

Purchase date: _____

Distributor: _____

Maintenance notes: _____

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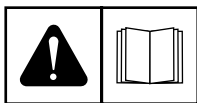
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For training and education resources, go to the Hypertherm Cutting Institute (HCI) online at www.hypertherm.com/hci.



ENGLISH

WARNING! Before operating any Hypertherm equipment, read the safety instructions in your product's manual, the *Safety and Compliance Manual* (80669C), *Waterjet Safety and Compliance Manual* (80943C), and *Radio Frequency Warning Manual* (80945C). Failure to follow safety instructions can result in personal injury or in damage to equipment.

Copies of the manuals can come with the product in electronic and printed formats. Electronic copies are also on our website. Many manuals are available in multiple languages at www.hypertherm.com/docs.

BG (БЪЛГАРСКИ/BULGARIAN)

ПРЕДУПРЕЖДЕНИЕ! Преди да работите с което и да е оборудване Hypertherm, прочетете инструкциите за безопасност в ръководството на вашия продукт, „Инструкция за безопасност и съответствие“ (80669C), „Инструкция за безопасност и съответствие на Waterjet“ (80943C) и „Инструкция за предупреждение за радиочестота“ (80945C).

Копия на ръководствата може да придружават продукта в електронен и в печатен формат. Можете да получите копия на ръководствата, предлагани на всички езици, от „Documents library“ (Библиотека за документи) на адрес www.hypertherm.com.

CS (ČESKY/CZECH)

VAROVÁNÍ! Před uvedením jakéhokoli zařízení Hypertherm do provozu si přečtěte bezpečnostní pokyny v příručce k produktu a v *Manuálu pro bezpečnost a dodržování předpisů* (80669C), *Manuálu pro bezpečnost a dodržování předpisů při řezání vodním paprskem* (80943C) a *Manuálu varování ohledně rádiových frekvencí* (80945C).

Kopie příruček a manuálů mohou být součástí dodávky produktu, a to v elektronické i tištěné formě. Kopie příruček a manuálů ve všech jazykových verzích, v nichž byly dané příručky a manuály vytvořeny, naleznete v „Knihovně dokumentů“ na webových stránkách www.hypertherm.com.

DA (DANSK/DANISH)

ADVARSEL! Inden Hypertherm udstyr tages i brug skal sikkerhedsinstruktionerne i produktets manual og i *Manual om sikkerhed og overholdelse af krav* (80669C), *Manual om sikkerhed og overholdelse af krav for vandstråleskæring* (80943C), og *Manual om radiofrekvensadvarsel* (80945C), gennemlæses.

Kopier af manualerne kan ledsage produktet i elektroniske og trykte formater. Du kan også få kopier af manualer, på alle sprog der er til rådighed for hver manuel, fra „Dokumentbiblioteket“ på www.hypertherm.com.

DE (DEUTSCH/GERMAN)

WARNUNG! Bevor Sie ein Hypertherm-Gerät in Betrieb nehmen, lesen Sie bitte die Sicherheitsanweisungen in Ihrer Bedienungsanleitung, das *Handbuch für Sicherheit und Übereinstimmung* (80669C), das *Handbuch für Sicherheit und Compliance bei Wasserstrahl-Schneidanlagen* (80943C) und das *Handbuch für Hochfrequenz-Warnung* (80945C).

Bedienungsanleitungen und Handbücher können dem Gerät in elektronischer Form oder als Druckversion beiliegen. Alle Handbücher und Anleitungen können in den jeweils verfügbaren Sprachen auch in der „Dokumente-Bibliothek“ unter www.hypertherm.com heruntergeladen werden.

ES (ESPAÑOL/SPANISH)

¡ADVERTENCIA! Antes de operar cualquier equipo Hypertherm, lea las instrucciones de seguridad del manual de su producto, del *Manual de seguridad y cumplimiento* (80669C), del *Manual de seguridad y cumplimiento en corte con chorro de agua* (80943C) y del *Manual de advertencias de radiofrecuencia* (80945C).

Pueden venir copias de los manuales en formato electrónico e impreso junto con el producto. También se pueden obtener copias de los manuales, en todos los idiomas disponibles para cada manual, de la “Biblioteca de documentos” en www.hypertherm.com.

ET (EESTI/ESTONIAN)

HOIATUS! Enne Hyperthermi mis tahes seadme kasutamist lugege läbi toote kasutusjuhendis olevad ohutusjuhised ning *Ohutus- ja vastavusjuhend* (80669C), *Veejoa ohutuse ja vastavuse juhend* (80943C) ja *Raadiosageduse hoiatusjuhend* (80945C). Ohutusjuhiste eiramine võib põhjustada vigastusi ja kahjustada seadmeid.

Juhiste koopiad võivad olla tootega kaasas elektroonilises ja trükitvormingus. Juhiste koopiad kõigis iga käsiraamatu jaoks saadaolevas keeles saate hankida ka „Documents library (dokumentide raamatukogust)” lehel www.hypertherm.com.

FI (SUOMI/FINNISH)

VAROITUS! Ennen minkään Hypertherm-laitteen käyttöä lue tuotteen käyttöoppaassa olevat turvallisuusohjeet, *turvallisuuden ja vaatimustenmukaisuuden käsikirja* (80669C), *vesileikkauksen turvallisuuden ja vaatimustenmukaisuuden käsikirja* (80943C) ja *radiotaajuusvaroitusten käsikirja* (80945C).

Käyttöoppaiden kopiot voivat olla tuotteen mukana elektronisessa ja tulostetussa muodossa. Voit saada käyttöoppaiden kopiot kaikilla kielillä ”latauskirjastosta”, joka on osoitteessa www.hypertherm.com.

FR (FRANÇAIS/FRENCH)

AVERTISSEMENT! Avant d'utiliser tout équipement Hypertherm, lire les consignes de sécurité du manuel de votre produit, du *Manuel de sécurité et de conformité* (80669C), du *Manuel de sécurité et de conformité du jet d'eau* (80943C) et du *Manuel d'avertissement relatif aux radiofréquences* (80945C).

Des copies de ces manuels peuvent accompagner le produit en format électronique et papier. Vous pouvez également obtenir des copies de chaque manuel dans toutes les langues disponibles à partir de la « Bibliothèque de documents » sur www.hypertherm.com.

GR (ΕΛΛΗΝΙΚΑ/GREEK)

ΠΡΟΕΙΔΟΠΟΙΗΣΗ! Πριν θέσετε σε λειτουργία οποιονδήποτε εξοπλισμό της Hypertherm, διαβάστε τις οδηγίες ασφαλείας στο εγχειρίδιο του προϊόντος και στο *εγχειρίδιο ασφαλείας και συμμόρφωσης* (80669C), στο *εγχειρίδιο ασφαλείας και συμμόρφωσης του waterjet* (80943C) και στο *εγχειρίδιο προειδοποιήσεων για τις ραδιοσυχνότητες* (80945C).

Αντίγραφο των εγχειριδίων μπορεί να συνοδεύουν το προϊόν σε ηλεκτρονική και έντυπη μορφή. Μπορείτε, επίσης, να λάβετε αντίγραφο των εγχειριδίων σε όλες τις γλώσσες που διατίθενται για κάθε εγχειρίδιο από την ψηφιακή βιβλιοθήκη εγγράφων (Documents library) στη διαδικτυακή τοποθεσία www.hypertherm.com.

HU (MAGYAR/HUNGARIAN)

VIGYÁZAT! Mielőtt bármilyen Hypertherm berendezést üzemeltetne, olvassa el a biztonsági információkat a termék kézikönyvében, a *Biztonsági és szabálykövetési kézikönyvben* (80669C), a *Vízugaras biztonsági és szabálykövetési kézikönyvben* (80943C) és a *Rádiófrekvenciás figyelmeztetéseket tartalmazó kézikönyvben* (80945C).

A termékhez a kézikönyv példányai elektronikus és nyomtatott formában is mellékelve lehetnek. A kézikönyvek példányai (minden nyelven) a www.hypertherm.com weboldalon a „Documents library” (Dokumentum könyvtár) részben is beszerezhetők.

ID (BAHASA INDONESIA/INDONESIAN)

PERINGATAN! Sebelum mengoperasikan peralatan Hypertherm, bacalah petunjuk keselamatan dalam manual produk Anda, *Manual Keselamatan dan Kepatuhan* (80669C), *Manual Keselamatan dan Kepatuhan Jet Air* (80943C), dan *Manual Peringatan Frekuensi Radio* (80945C). Kegagalan mengikuti petunjuk keselamatan dapat menyebabkan cedera pribadi atau kerusakan pada peralatan.

Produk mungkin disertai salinan manual dalam format elektronik maupun cetak. Anda juga dapat memperoleh salinan manual, dalam semua bahasa yang tersedia untuk setiap manual, dari "Perpustakaan dokumen" di www.hypertherm.com.

IT (ITALIANO/ITALIAN)

AVVERTENZA! Prima di usare un'attrezzatura Hypertherm, leggere le istruzioni sulla sicurezza nel manuale del prodotto, nel *Manuale sulla sicurezza e la conformità* (80669C), nel *Manuale sulla sicurezza e la conformità Waterjet* (80943C) e nel *Manuale di avvertenze sulla radiofrequenza* (80945C).

Il prodotto può essere accompagnato da copie elettroniche e cartacee del manuale. È anche possibile ottenere copie del manuale, in tutte le lingue disponibili per ogni manuale, dall'“Archivio documenti” all'indirizzo www.hypertherm.com.

JA (日本語/JAPANESE)

警告！Hypertherm 機器を操作する前に、この製品説明書にある安全情報、「安全とコンプライアンスマニュアル」(80669C)、「ウォータージェット の安全とコンプライアンス」(80943C)、「高周波警告」(80945C)をお読み ください。

説明書のコピーは、電子フォーマット、または印刷物として製品に同梱さ れています。各説明書は、www.hypertherm.com の「ドキュメントライブラ リ」から各言語で入手できます。

KO (한국어/KOREAN)

경고! Hypertherm 장비를 사용하기 전에 제품 설명서와 안전 및 규정 준수 설명서(80669C), 워터젯 안전 및 규정 준수 설명서(80943C) 그리고 무선 주파수 경고 설명서(80945C)에 나와 있는 안전 지침을 읽으십시오.

전자 형식과 인쇄된 형식으로 설명서 사본이 제품과 함께 제공될 수 있습니다. www.hypertherm.com 의 'Documents library (문서 라이브러리)' 에서도 모든 언어로 이용할 수 있는 설명서 사본을 얻을 수 있습니다.

NE (NEDERLANDS/DUTCH)

WAARSCHUWING! Lees voordat u Hypertherm-apparaat gebruikt de veiligheidsinstructies in de producthandleiding, in de *Veiligheids- en nalevingshandleiding* (80669C) in de *Veiligheids- en nalevingshandleiding voor waterstralen* (80943C) en in de *Waarschuwingshandleiding radiofrequentie* (80945C).

De handleidingen kunnen in elektronische en gedrukte vorm met het product worden meegeleverd. De handleidingen, elke handleiding beschikbaar in alle talen, zijn ook verkrijgbaar via de “Documentenbibliotheek” op www.hypertherm.com.

NO (NORSK/NORWEGIAN)

ADVARSEL! Før du bruker noe Hypertherm-utstyr, må du lese sikkerhetsinstruksjonene i produktets håndbok, *håndboken om sikkerhet og samsvar* (80669C), *håndboken om vannjet sikkerhet og samsvar* (80943C), og *håndboken om radiofrekvensadvarsler* (80945C).

Eksemplarer av håndbøkene kan medfølge produktet i elektroniske og trykte utgaver. Du kan også få eksemplarer av håndbøkene i alle tilgjengelige språk for hver håndbok fra dokumentbiblioteket på www.hypertherm.com.

PL (POLSKI/POLISH)

OSTRZEŻENIE! Przed rozpoczęciem obsługi jakiegokolwiek systemu firmy Hypertherm należy się zapoznać z instrukcjami bezpieczeństwa zamieszczonymi w podręczniku produktu, w *podręczniku bezpieczeństwa i zgodności* (80669C), *podręczniku bezpieczeństwa i zgodności systemów strumienia wody* (80943C) oraz *podręczniku z ostrzeżeniem o częstotliwości radiowej* (80945C).

Do produktu mogą być dołączone kopie podręczników w formacie elektronicznym i drukowanym. Kopie podręczników, w każdym udostępnionym języku, można również znaleźć w „Bibliotece dokumentów” pod adresem www.hypertherm.com.

PT (PORTUGUÊS/PORTUGUESE)

ADVERTÊNCIA! Antes de operar qualquer equipamento Hypertherm, leia as instruções de segurança no manual do seu produto, no *Manual de Segurança e de Conformidade* (80669C), no *Manual de Segurança e de Conformidade do Waterjet* (80943C) e no *Manual de Advertência de radiofrequência* (80945C).

Cópias dos manuais podem acompanhar os produtos nos formatos eletrônico e impresso. Também é possível obter cópias dos manuais em todos os idiomas disponíveis para cada manual na “Biblioteca de documentos” em www.hypertherm.com.

RO (ROMÂNĂ/ROMANIAN)

AVERTIZARE! Înainte de utilizarea oricărui echipament Hypertherm, citiți instrucțiunile de siguranță din manualul produsului, *manualul de siguranță și conformitate* (80669C), *manualul de siguranță și conformitate Waterjet* (80943C) și din *manualul de avertizare privind radiofrecvența* (80945C).

Produsul poate fi însoțit de copii ale manualului în format tipărit și electronic. De asemenea, dumneavoastră puteți obține copii ale manualelor, în toate limbile disponibile pentru fiecare manual, din cadrul secțiunii „Bibliotecă documente” aflată pe site-ul www.hypertherm.com.

RU (РУССКИЙ/RUSSIAN)

БЕРЕГИСЬ! Перед работой с любым оборудованием Hypertherm ознакомьтесь с инструкциями по безопасности, представленными в руководстве, которое поставляется вместе с продуктом, в *Руководстве по безопасности и соответствию* (80669C), в *Руководстве по безопасности и соответствию для водоструйной резки* (80943C) и *Руководстве по предупреждению о радиочастотном излучении* (80945C).

Копии руководств, которые поставляются вместе с продуктом, могут быть представлены в электронном и бумажном виде. Копии руководств на всех языках, на которые переведено то или иное руководство, можно также загрузить в разделе «Библиотека документов» на веб-сайте www.hypertherm.com.

SK (SLOVENČINA/SLOVAK)

VÝSTRAHA! Pred použitím akéhokoľvek zariadenia od spoločnosti Hypertherm si prečítajte bezpečnostné pokyny v návode na obsluhu vášho zariadenia a v *Manuáli o bezpečnosti a súlade s normami* (80669C), *Manuáli o bezpečnosti a súlade s normami pre systém rezania vodou* (80943C) a v *Manuáli s informáciami o rádiových frekvenciách* (80945C).

Kópia návodu, ktorá je dodávaná s produktom, môže mať elektronickú alebo tlačенú podobu. Kópie návodov, vo všetkých dostupných jazykoch, sú k dispozícii aj v sekcii z „knížnice Dokumenty“ na www.hypertherm.com.

SL (SLOVENŠČINA/SLOVENIAN)

OPOZORILO! Pred uporabo katerekoli Hyperthermove opreme preberite varnostna navodila v priročniku vašega izdelka, v *Priročniku za varnost in skladnost* (80669C), v *Priročniku za varnost in skladnost sistemov rezanja z vodnim curkom* (80943C) in v *Priročniku Opozorilo o radijskih frekvencah* (80945C).

Izdelku so lahko priloženi izvodi priročnikov v elektronski ali tiskani obliki. Izvode priročnikov v vseh razpoložljivih jezikih si lahko prenesete tudi iz knjižnice dokumentov “Documents library” na naslovu www.hypertherm.com.

SR (SRPSKI/SERBIAN)

UPOZORENJE! Pre rukovanja bilo kojom Hyperthermovom opremom pročitajte uputstva o bezbednosti u svom priručniku za proizvod, *Priručniku o bezbednosti i usaglašenosti* (80669C), *Priručniku o bezbednosti i usaglašenosti Waterjet tehnologije* (80943C) i *Priručniku sa upozorenjem o radio-frekvenciji* (80945C).

Može se dogoditi da kopije priručnika prate proizvod u elektronskom i štampanom formatu. Takođe možete da pronadete kopije priručnika, na svim jezicima koji su dostupni za svaki od priručnika, u “Biblioteci dokumenata” (“Documents library”) na www.hypertherm.com.

SV (SVENSKA/SWEDISH)

VARNING! Läs häftet säkerhetsinformationen i din produkts *säkerhets- och efterlevnadsmanual* (80669C), *säkerhets- och efterlevnadsmanualen för Waterjet* (80943C) och *varningsmanualen för radiofrekvenser* (80945C) för viktig säkerhetsinformation innan du använder eller underhåller Hypertherm-utrustning.

Kopior av manualen kan medfölja produkten i elektronisk och tryckform. Du hittar även kopior av manualerna i alla tillgängliga språk i dokumentbiblioteket (Documents library) på www.hypertherm.com.

TH (ภาษาไทย/THAI)

คำเตือน! ก่อนการใช้งานอุปกรณ์ของ Hypertherm ทั้งหมด โปรดอ่านคำแนะนำด้านความปลอดภัยในคู่มือการใช้สินค้า คู่มือด้านความปลอดภัยและการปฏิบัติตาม (80669C), คู่มือด้านความปลอดภัยและการปฏิบัติตามสำหรับการใช้หัวตัดระบบวอเตอร์เจ็ต (80943C) และ คู่มือคำเตือนเกี่ยวกับความถี่วิทยุ (80945C) การไม่ปฏิบัติตามคำแนะนำด้านความปลอดภัยอาจส่งผลให้เกิดการบาดเจ็บหรือเกิดความเสียหายต่ออุปกรณ์

สินค้าอาจมีสำเนาคู่มือในรูปแบบอิเล็กทรอนิกส์และแบบสิ่งพิมพ์แนมมาด้วย นอกจากนี้ คุณสามารถขอรับสำเนาคู่มือแต่ละประเภทเป็นภาษาต่าง ๆ ที่มีให้ใช้งานได้ที่ “คลังเอกสาร” ในเว็บไซต์ www.hypertherm.com

TR (TÜRKÇE/TURKISH)

UYARI! Bir Hypertherm ekipmanını çalıştırmadan önce, ürününüzün kullanım kılavuzunda, *Güvenlik ve Uyumluluk Kılavuzu'nda* (80669C), *Su Jeti Güvenlik ve Uyumluluk Kılavuzu'nda* (80943C) ve *Radyo Frekansı Uyarısı Kılavuzu'nda* (80945C) yer alan güvenlik talimatlarını okuyun.

Kılavuzların kopyaları, elektronik ve basılı formatta ürünle birlikte verilebilir. Her biri tüm dillerde yayınlanan kılavuzların kopyalarını www.hypertherm.com adresindeki “Documents library” (Dosyalar kitaplığı) başlığından da elde edebilirsiniz.

VI (TIẾNG VIỆT/VIETNAMESE)

CẢNH BÁO! Trước khi vận hành bất kỳ thiết bị Hypertherm nào, hãy đọc các hướng dẫn an toàn trong hướng dẫn sử dụng sản phẩm của bạn, *Sổ tay An toàn và Tuân thủ* (80669C), *Sổ tay An toàn và Tuân thủ Tia nước* (80943C), và *Hướng dẫn Cảnh báo Tần số Vô tuyến* (80945C). Không tuân thủ các hướng dẫn an toàn có thể dẫn đến thương tích cá nhân hoặc hư hỏng thiết bị.

Bản sao của các hướng dẫn sử dụng có thể đi kèm sản phẩm ở định dạng điện tử và bản in. Bạn cũng có thể lấy bản sao của các hướng dẫn sử dụng, thuộc tất cả các ngôn ngữ hiện có cho từng hướng dẫn sử dụng, từ “Thư viện tài liệu” tại địa chỉ www.hypertherm.com.

ZH-CN (简体中文/CHINESE SIMPLIFIED)

警告！在操作任何海宝设备之前，请阅读产品手册、《安全和法规遵守手册》(80669C)、《水射流安全和法规遵守手册》(80943C) 以及《射频警告手册》(80945C) 中的安全操作说明。

随产品提供的手册可能提供电子版和印刷版两种格式。您也可从“Documents library”（文档资料库）中获取每本手册所有可用语言的副本，网址为 www.hypertherm.com。

ZH-TW (繁體中文/CHINESE TRADITIONAL)

警告！在操作任何 Hypertherm 設備前，請先閱讀您產品手冊內的安全指示，包括《安全和法規遵從手冊》(80669C)、《水刀安全和法規遵從手冊》(80943C)，以及《無線電頻率警示訊號手冊》(80945C)。

手冊複本可能以電子和印刷格式隨附產品提供。您也可以在此 www.hypertherm.com 的「文檔資料庫」內獲取所有手冊的多語種複本。

Contents

Electromagnetic Compatibility (EMC)..... SC-11

Introduction.....	SC-11
Installation and use.....	SC-11
Assessment of area	SC-11
Methods of reducing emissions.....	SC-11
Mains supply	SC-11
Maintenance of cutting equipment.....	SC-11
Cutting cables	SC-11
Equipotential bonding	SC-11
Screening and shielding	SC-12

Warranty..... SC-13

Attention.....	SC-13
General.....	SC-13
Patent indemnity.....	SC-13
Limitation of liability.....	SC-13
National and local codes.....	SC-13
Liability cap.....	SC-14
Insurance.....	SC-14
Transfer of rights.....	SC-14
Waterjet product warranty coverage	SC-14
Product	SC-14
Parts coverage.....	SC-14

Cut charts..... 15

Overview 15

 Extreme bevel consumables 15

 Recommended torch-pivot lengths..... 16

 Clearance..... 16

 Maximum torch angle 17

 Effective thickness 17

Extreme bevel cut charts 19

Introduction

Hypertherm's CE-marked equipment is built in compliance with standard EN60974-10. The equipment should be installed and used in accordance with the information below to achieve electromagnetic compatibility.

The limits required by EN60974-10 may not be adequate to completely eliminate interference when the affected equipment is in close proximity or has a high degree of sensitivity. In such cases it may be necessary to use other measures to further reduce interference.

This cutting equipment is designed for use only in an industrial environment.

Installation and use

The user is responsible for installing and using the plasma equipment according to the manufacturer's instructions.

If electromagnetic disturbances are detected then it shall be the responsibility of the user to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing the cutting circuit, see *Earthing of the workpiece*. In other cases, it could involve constructing an electromagnetic screen enclosing the power source and the work complete with associated input filters. In all cases, electromagnetic disturbances must be reduced to the point where they are no longer troublesome.

Assessment of area

Before installing the equipment, the user shall make an assessment of potential electromagnetic problems in the surrounding area. The following shall be taken into account:

- a. Other supply cables, control cables, signaling and telephone cables; above, below and adjacent to the cutting equipment.
- b. Radio and television transmitters and receivers.
- c. Computer and other control equipment.
- d. Safety critical equipment, for example guarding of industrial equipment.
- e. Health of the people around, for example the use of pacemakers and hearing aids.
- f. Equipment used for calibration or measurement.
- g. Immunity of other equipment in the environment. User shall ensure that other equipment being used in the environment is compatible. This may require additional protection measures.
- h. Time of day that cutting or other activities are to be carried out.

The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

Methods of reducing emissions

Mains supply

Cutting equipment must be connected to the mains supply according to the manufacturer's recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering of the mains supply.

Consideration should be given to shielding the supply cable of permanently installed cutting equipment, in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the cutting mains supply so that good electrical contact is maintained between the conduit and the cutting power source enclosure.

Maintenance of cutting equipment

The cutting equipment must be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the cutting equipment is in operation. The cutting equipment should not be modified in any way, except as set forth in and in accordance with the manufacturer's written instructions. For example, the spark gaps of arc striking and stabilizing devices should be adjusted and maintained according to the manufacturer's recommendations.

Cutting cables

The cutting cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

Equipotential bonding

Bonding of all metallic components in the cutting installation and adjacent to it should be considered.

However, metallic components bonded to the workpiece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode (nozzle for laser heads) at the same time.

The operator should be insulated from all such bonded metallic components.

Earthing of the workpiece

Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, for example, ship's hull or building steel work, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the workpiece increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by a direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitances selected according to national regulations.

Note: The cutting circuit may or may not be earthed for safety reasons. Changing the earthing arrangements should only be authorized by a person who is competent to assess whether the changes will increase the risk of injury, for example, by allowing parallel cutting current return paths which may damage the earth circuits of other equipment. Further guidance is provided in IEC 60974-9, Arc Welding Equipment, Part 9: Installation and Use.

Screening and shielding

Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of the entire plasma cutting installation may be considered for special applications.

Attention

Genuine Hypertherm parts are the factory-recommended replacement parts for your Hypertherm system. Any damage or injury caused by the use of other than genuine Hypertherm parts may not be covered by the Hypertherm warranty, and will constitute misuse of the Hypertherm Product.

You are solely responsible for the safe use of the Product. Hypertherm does not and cannot make any guarantee or warranty regarding the safe use of the product in your environment.

General

Hypertherm, Inc. warrants that its Products shall be free from defects in materials and workmanship for the specific periods of time set forth herein and as follows: if Hypertherm is notified of a defect (i) with respect to the plasma power supply within a period of two (2) years from the date of its delivery to you, with the exception of Powermax brand power supplies, which shall be within a period of three (3) years from the date of delivery to you, and (ii) with respect to the torch and leads within a period of one (1) year from its date of delivery to you, with the exception of the HPRXD short torch with integrated lead, which shall be within a period of six (6) months from the date of delivery to you, and with respect to torch lifter assemblies within a period of one (1) year from its date of delivery to you, and with respect to Automation products one (1) year from its date of delivery to you, with the exception of the EDGE Connect CNC, EDGE Connect T CNC, EDGE Connect TC CNC, EDGE Pro CNC, EDGE Pro Ti CNC, MicroEDGE Pro CNC, and ArcGlide THC, which shall be within a period of two (2) years from the date of delivery to you, and (iii) with respect to HyIntensity fiber laser components within a period of two (2) years from the date of its delivery to you, with the exception of laser heads and beam delivery cables, which shall be within a period of one (1) year from its date of delivery to you.

All third-party engines, engine accessories, alternators, and alternator accessories are covered by the respective manufacturers' warranties and not covered by this warranty.

This warranty shall not apply to any Powermax brand power supplies that have been used with phase converters. In addition, Hypertherm does not warranty systems that have been damaged as a result of poor power quality, whether from phase converters or incoming line power. This warranty shall not apply to any product which has been incorrectly installed, modified, or otherwise damaged.

Hypertherm provides repair, replacement or adjustment of the Product as the sole and exclusive remedy, if and only if the warranty set forth herein properly is invoked and applies. Hypertherm, at its sole option, shall repair, replace, or adjust, free of charge, any defective Products covered by this warranty which shall be returned with Hypertherm's prior authorization (which shall not be unreasonably withheld), properly packed, to Hypertherm's place of business in Hanover, New Hampshire, or to an authorized Hypertherm repair facility, all costs, insurance and freight pre paid by the customer. Hypertherm shall not be liable for any repairs, replacement, or adjustments of Products covered by this warranty, except those made pursuant to this paragraph and with Hypertherm's prior written consent.

The warranty set forth above is exclusive and is in lieu of all other warranties, express, implied, statutory, or otherwise with respect to the Products or as to the results which may be obtained therefrom, and all implied warranties or conditions of quality or of merchantability or fitness for a particular purpose or against infringement. The foregoing shall constitute the sole and exclusive remedy for any breach by Hypertherm of its warranty.

Distributors/OEMs may offer different or additional warranties, but Distributors/OEMs are not authorized to give any additional warranty protection to you or make any representation to you purporting to be binding upon Hypertherm.

Patent indemnity

Except only in cases of products not manufactured by Hypertherm or manufactured by a person other than Hypertherm not in strict conformity with Hypertherm's specifications and in cases of designs, processes, formulae, or combinations not developed or purported to be developed by Hypertherm, Hypertherm will have the right to defend or settle, at its own expense, any suit or proceeding brought against you alleging that the use of the Hypertherm product, alone and not in combination with any other product not supplied by Hypertherm, infringes any patent of any third party. You shall notify Hypertherm promptly upon learning of any action or threatened action in connection with any such alleged infringement (and in any event no longer than fourteen (14) days after learning of any action or threat of action), and Hypertherm's obligation to defend shall be conditioned upon Hypertherm's sole control of, and the indemnified party's cooperation and assistance in, the defense of the claim.

Limitation of liability

In no event shall Hypertherm be liable to any person or entity for any incidental, consequential direct, indirect, punitive or exemplary damages (including but not limited to lost profits) regardless of whether such liability is based on breach of contract, tort, strict liability, breach of warranty, failure of essential purpose, or otherwise, and even if advised of the possibility of such damages. Hypertherm shall not be liable for any losses to Distributor based on down time, lost production or lost profits. It is the intention of the Distributor and Hypertherm that this provision be construed by a court as being the broadest limitation of liability consistent with applicable law.

National and local codes

National and local codes governing plumbing and electrical installation shall take precedence over any instructions contained in this manual. In no event shall Hypertherm be liable for injury to persons or property damage by reason of any code violation or poor work practices.

Warranty

Liability cap

In no event shall Hypertherm's liability, if any, whether such liability is based on breach of contract, tort, strict liability, breach of warranties, failure of essential purpose or otherwise, for any claim, action, suit or proceeding (whether in court, arbitration, regulatory proceeding or otherwise) arising out of or relating to the use of the Products exceed in the aggregate the amount paid for the Products that gave rise to such claim.

Insurance

At all times you will have and maintain insurance in such quantities and types, and with coverage sufficient and appropriate to defend and to hold Hypertherm harmless in the event of any cause of action arising from the use of the products.

Transfer of rights

You may transfer any remaining rights you may have hereunder only in connection with the sale of all or substantially all of your assets or capital stock to a successor in interest who agrees to be bound by all of the terms and conditions of this Warranty. Within thirty (30) days before any such transfer occurs, you agree to notify in writing Hypertherm, which reserves the right of approval. Should you fail timely to notify Hypertherm and seek its approval as set forth herein, the Warranty set forth herein shall be null and void and you will have no further recourse against Hypertherm under the Warranty or otherwise.

Waterjet product warranty coverage

Product	Parts coverage
HyPrecision pumps	27 months from the ship date, or 24 months from the date of proven installation, or 4,000 hours, whichever occurs first
PowerDredge abrasive removal system	15 months from the ship date or 12 months from the date of proven installation, whichever occurs first
EcoSift abrasive recycling system	15 months from the ship date or 12 months from the date of proven installation, whichever occurs first
Abrasive metering devices	15 months from the ship date or 12 months from the date of proven installation, whichever occurs first
On/off valve air actuators	15 months from the ship date or 12 months from the date of proven installation, whichever occurs first
Diamond orifices	600 hours of use with the use of a thimble filter and compliance with Hypertherm's water quality requirements

Consumable parts are not covered by this warranty. Consumable parts include, but are not limited to, high-pressure water seals, check valves, cylinders, bleed-down valves, low-pressure seals, high-pressure tubing, low- and high-pressure water filters and abrasive collection bags. All third-party pumps, pump accessories, hoppers, hopper accessories, dryer boxes, dryer box accessories and plumbing accessories are covered by the respective manufacturers' warranties and not covered by this warranty.

Cut charts

Overview

Extreme bevel consumables

The MAXPRO200 extreme bevel consumables include the following components:

Part number	Description	Current	Gas
420737	Shield	200 A	Air and O ₂
420735	Shield	130 A	Air and O ₂
420732	Electrode	200 A	Air and O ₂
420824	Electrode	130 A	Air and O ₂
420734	Nozzle	200 A	Air
420829	Nozzle	130 A	Air
420733	Nozzle	200 A	O ₂
420828	Nozzle	130 A	O ₂

Standard MAXPRO200 retaining caps and swirl rings are compatible with extreme bevel consumables. Refer to [Extreme bevel cut charts](#) on page 19.

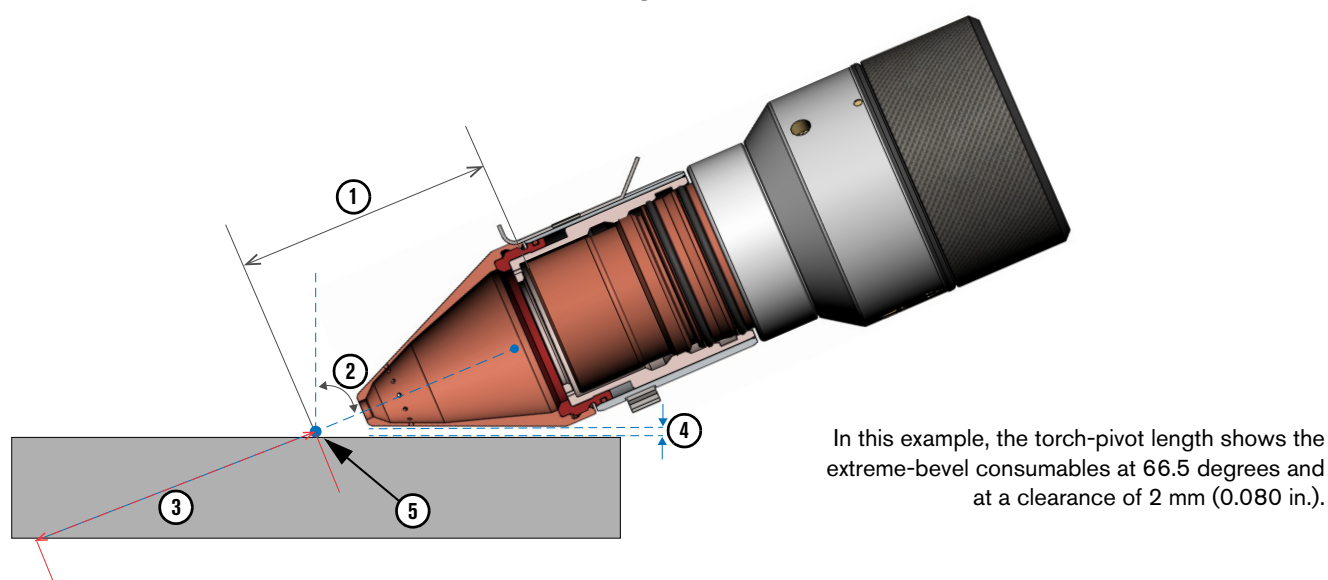
The standard MAXPRO200 water tube is **not** compatible with extreme bevel consumables. You must exchange it with the longer water tube (420823) prior to using extreme bevel consumables.

Recommended torch-pivot lengths

The bevel-pivot point ⑤ has an effect on the recommended torch-pivot length ①. The bevel-pivot point is the intersection of the torch axis and the top of the workpiece when the torch is at its maximum angle and minimum clearance.

The use of extreme bevel consumables increases the recommended torch-pivot length by more than 100%. Refer to [Figure 1](#) and [Table 1](#).

Figure 1



1	Torch-pivot length	4	Clearance
2	Maximum tilt angle	5	Bevel-pivot point
3	Effective thickness		

Table 1 – Recommended torch-pivot lengths by product type

	MAXPRO200 standard mechanized consumables		MAXPRO200 extreme bevel consumables	
Torch-pivot length	30 mm (1.18 in.)	31 mm (1.24 in.)	62 mm (2.44 in.)	65 mm (2.55 in.)
Maximum torch angle	45 degrees	45 degrees	66.5 degrees	66.5 degrees
Clearance	2 mm (0.08 in.)	3 mm (0.125 in.)	2 mm (0.08 in.)	3 mm (0.125 in.)

Clearance

Clearance ④ is the minimum distance between the torch and the top of the workpiece. A higher clearance can decrease the chance of torch collisions with the workpiece. But, it can also cause the following conditions:

- Increased cut heights that give bad edge quality and make higher-angle compensations necessary
- Increased voltages that can have a bad effect on the duty cycle of the plasma power supply

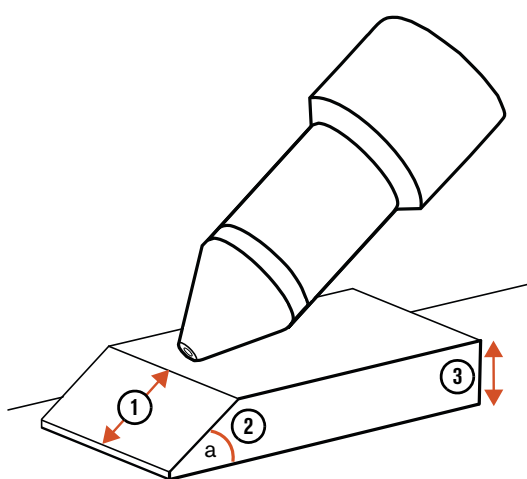
Maximum torch angle

The maximum torch angle with extreme bevel consumables is 66.5 degrees at a clearance of 2 mm (0.080 in). Using a maximum torch angle during bevel cutting increases the effective thickness of the workpiece being cut. For example, bevel cutting a 12 mm (.50 inch) workpiece at a 60-degree angle is like cutting a 25 mm (1 inch) workpiece at a 90-degree angle. Refer to [Effective thickness](#).

Hypertherm recommends using the default torch-clearance settings to start cutting. Adjust clearance settings only when necessary.

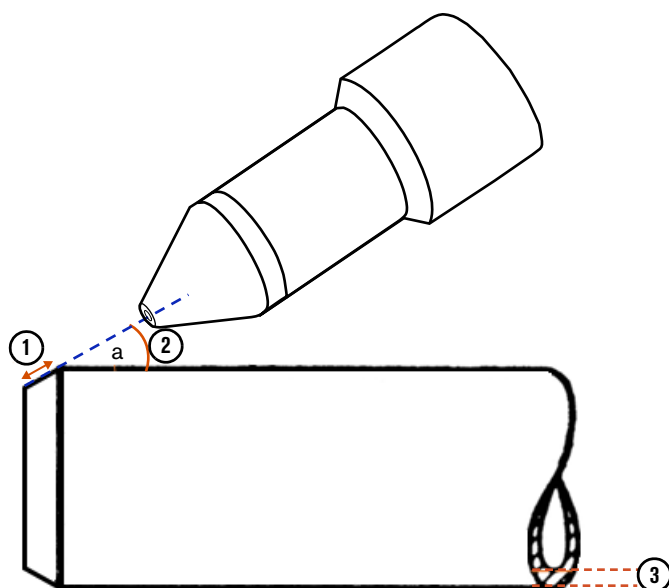
Effective thickness

Effective thickness ① is directly related to the workpiece thickness ③ and the angle of the torch ②. When cutting at an angle, the thickness that the torch has to cut is increased.



$$\text{Effective thickness ①} = \frac{\text{Workpiece thickness ③}}{\sin(a) ②}$$

1	Effective thickness
2	Angle of the torch – sin(a)
3	Workpiece thickness



$$\text{Effective thickness } \textcircled{1} = \frac{\text{Wall thickness } \textcircled{3}}{\sin(a) \textcircled{2}}$$

* For pipe cutting, substitute “workpiece thickness” with “wall thickness” to calculate the effective thickness.

1	Effective thickness
2	Angle of the torch – sin(a)
3	Wall thickness

The table below shows how effective thickness changes with different torch angles.

Effective thickness	Torch angle
12 mm (.50 inch)	90 degrees
17 mm (.71 inch)	45 degrees
25.4 mm (1.00 inch)	60 degrees

You can calculate the effective thickness for any thickness and torch-angle combination with the following formula:

$$\text{Effective thickness} = \text{Workpiece thickness} / \sin(a)$$

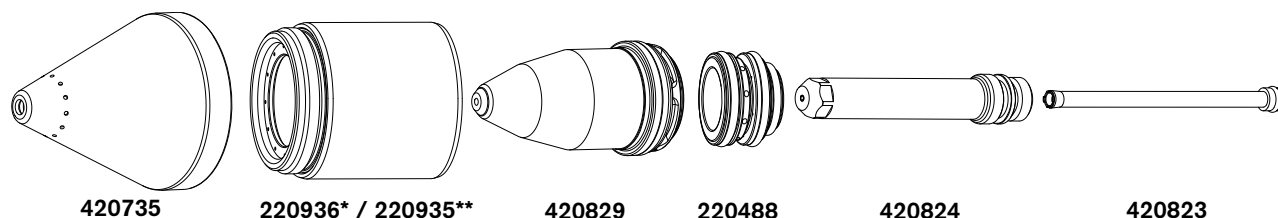
Hypertherm recommends that you use the thickness settings in the cut chart that are most similar to the effective thickness that you want to cut. After cutting starts, adjust thickness settings only as necessary.

Extreme bevel cut charts

Mild steel

Air Plasma / Air Shield

130 A Extreme bevel cutting



Metric

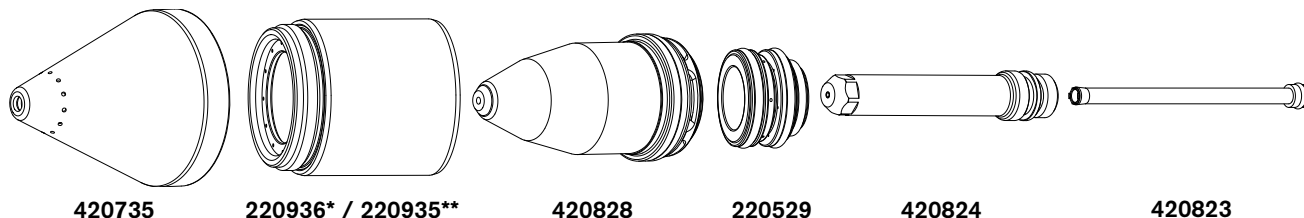
Plasma Cutflow				Shield Cutflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	mm	Volts	mm	mm/min	mm	Factor %	Seconds
68	69	70	71	22	24	26	28	3	142	3.0	5350	6.0	200	0.1
								4	143	3.0	4630	6.0	200	0.2
								6	146	2.4	3865	7.5	300	0.3
								10	151	4.1	2445	8.2	200	0.5
								12	153	4.1	2045	8.2	200	0.5
								15	157	4.4	1445	8.8	200	0.8
								20	163	4.6	815	9.6	210	1.2
								25	170	4.6	415	Edge start		
								32	179	4.6	250			

English

Plasma Cutflow				Shield Cutflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	in	Volts	in	ipm	in	Factor %	Seconds
68	69	70	71	22	24	26	28	0.135	145	0.120	220	0.240	200	0.1
								0.1875	144	0.120	160	0.240	200	0.2
								0.25	143	0.120	150	0.300	300	0.3
								0.375	152	0.160	100	0.320	200	0.5
								0.50	153	0.160	75	0.320	200	0.5
								0.625	158	0.180	50	0.360	200	0.8
								0.75	160	0.180	35	0.375	210	1.2
								1.00	172	0.180	15	Edge start		
								1.25	178	0.180	10			

*with IHS tab / **without IHS tab

Mild steel
O₂ Plasma / Air Shield
130 A Extreme bevel cutting

**Metric**

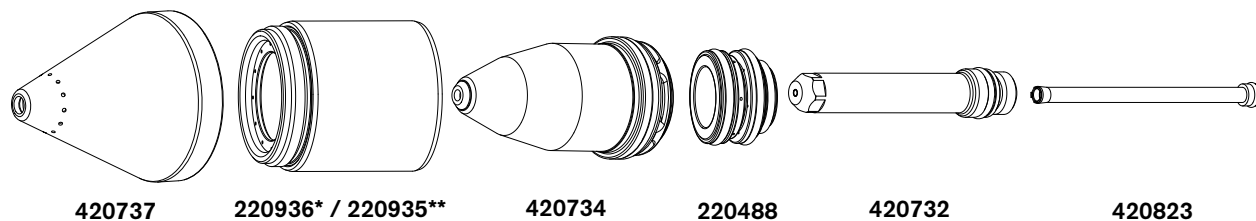
Plasma Cutflow				Shield Cutflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	mm	Volts	mm	mm/min	mm	Factor %	Seconds
62	62	64	64	30	32	35	37	3	130	2.6	5900	5.2	200	0.1
								4	131	2.7	5325	5.4	200	0.2
								6	134	2.8	3925	5.6	200	0.3
								10	136	3.0	2680	6.0	200	0.4
								12	138	3.0	2200	6.0	200	0.5
								15	140	3.6	1310	7.2	200	0.7
								20	145	3.9	880	7.8	200	1.0
								25	151	3.9	845	Edge start		
								32	158	3.9	365			

English

Plasma Cutflow				Shield Cutflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	in	Volts	in	ipm	in	Factor %	Seconds
62	62	64	64	30	32	35	37	0.135	130	0.100	240	0.200	200	0.1
								0.1875	132	0.110	190	0.220	200	0.2
								0.25	134	0.110	150	0.220	200	0.3
								0.375	136	0.120	110	0.240	200	0.3
								0.50	138	0.120	80	0.240	200	0.5
								0.625	141	0.150	50	0.300	200	0.7
								0.75	144	0.150	35	0.300	200	1.0
								1.00	151	0.150	18	Edge start		
								1.25	158	0.150	14			

*with IHS tab / **without IHS tab

Mild steel
Air Plasma / Air Shield
200 A Extreme bevel cutting

**Metric**

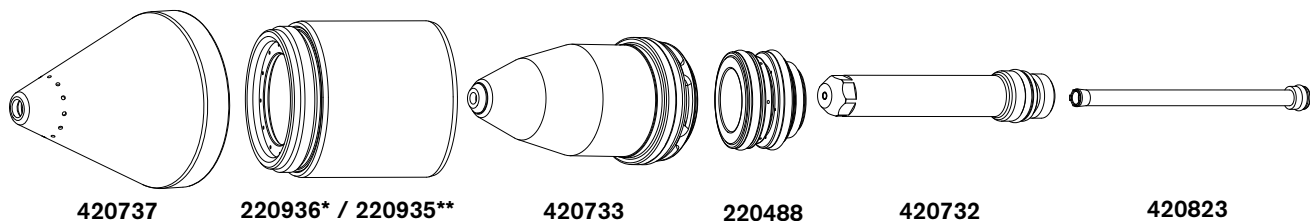
Plasma Cutflow				Shield Cutflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	mm	Volts	mm	mm/min	mm	Factor %	Seconds
52	54	55	56	48	50	54	58	6	137	1.0	4885	3.0	300	0.3
								8	140	1.3	4515	3.9	300	0.5
								10	142	3.0	3556	5.5	200	0.8
								12	144	3.0	2794	6.0	200	0.9
								15	147	4.3	2265	8.6	200	1.0
								20	153	4.8	1415	9.6	200	1.4
								25	159	6.4	940	11.4	180	1.7
								32	167	6.4	630	11.4	180	2.3
								38	174	6.4	510	Edge start		
								44	180	6.4	320			
								50	187	6.4	215			

English

Plasma Cutflow				Shield Cutflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	in	Volts	in	ipm	in	Factor %	Seconds
52	54	55	56	48	50	54	58	.25	140	0.100	190	0.120	300	0.3
								0.3125	139	0.100	180	0.150	300	0.5
								0.375	138	0.100	140	0.200	200	0.8
								0.50	142	0.130	110	0.250	200	0.9
								0.625	149	0.190	85	0.380	200	1.0
								0.75	152	0.190	60	0.380	200	1.2
								0.875	156	0.190	50	0.380	200	1.4
								1.00	165	0.250	35	0.450	180	1.7
								1.25	166	0.250	25	0.450	180	2.3
								1.50	171	0.250	20	Edge start		
								1.75	181	0.250	12			
								2.00	188	0.250	8			

*with IHS tab / **without IHS tab

Mild steel
O₂ Plasma / Air Shield
200 A Extreme bevel cutting

**Metric**

Plasma Outflow				Shield Outflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	7.6 m Lead	15.3 m Lead	22.9 m Lead	30.5 m Lead	mm	Volts	mm	mm/min	mm	Factor %	Seconds
68	69	70	71	48	50	54	58	6	139	1.5	6210	3.0	200	0.3
								8	143	3.4	4850	5.1	150	0.4
								10	148	4.6	3735	6.9	150	0.5
								12	146	3.8	3415	9.5	250	0.7
								15	145	3.1	2845	7.8	250	0.9
								20	146	3.0	1920	7.5	250	1.3
								25	146	3.2	1430	8.0	250	1.6
								32	153	3.1	805	8.9	280	2.5
								38	160	4.4	570	Edge start		
								44	166	4.4	395			
								50	171	4.4	270			

English

Plasma Outflow				Shield Outflow				Effective Thickness	Arc Voltage	Cut Height	Cut Speed	Pierce Height		Pierce Delay
25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	25 ft Lead	50 ft Lead	75 ft Lead	100 ft Lead	in	Volts	in	ipm	in	Factor %	Seconds
68	69	70	71	48	50	54	58	.25	137	0.100	235	0.200	200	0.3
								.375	151	0.190	150	0.280	150	0.5
								.50	147	0.140	130	0.280	200	0.5
								.625	147	0.120	105	0.280	250	0.9
								.75	148	0.120	80	0.280	250	1.2
								.875	148	0.130	65	0.280	250	1.4
								1.00	148	0.130	55	0.310	250	1.6
								1.25	155	0.130	32	0.350	280	2.5
								1.50	161	0.180	22	Edge start		
								1.75	168	0.180	15			
								2.00	174	0.180	10			

*with IHS tab / **without IHS tab