Hypertherm®

XPR™

Cut Charts

809830 – REVISION 3

ENGLISH

Register your new Hypertherm system

Benefits of registration

- ☑ **Safety:** Registration allows us to contact you in the unlikely event a safety or quality notification is required.
- ☑ **Education:** Registration gives you free access to online product training content via the Hypertherm Cutting Institute.
- ☑ **Confirmation of ownership:** Registration can serve as proof of purchase in case of an insurance loss.

Go to **www.hypertherm.com/registration** for easy and fast registration.

If you experience any problems with the product registration process, please contact registration@hypertherm.com.

For your records

Serial number: _____

Purchase date: _____

Distributor: _____

_____

_____

Maintenance notes: _____

_____

_____

_____

_____

Environmental stewardship is one of Hypertherm's core values, and it is critical to our success and our customers' success. We are striving to reduce the environmental impact of everything we do. For more information: www.hypertherm.com/environment.

XPR

Instruction Manual

809830
REVISION 3

ENGLISH
Original instructions

September 2020

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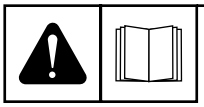
For training and education resources, go to the Hypertherm Cutting Institute (HCI) online at www.hypertherm.com/hci.



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 trükivormingus. Juhiste koopiaid 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 ασφάλειας και συμμόρφωσης* (80669C), στο *εγχειρίδιο ασφάλειας και συμμόρφωσης του waterjet* (80943C) και στο *εγχειρίδιο προειδοποιήσεων για τις ραδιοσυχνότητες* (80945C).

Αντίγραφα των εγχειριδίων μπορεί να συνοδεύουν το προϊόν σε ηλεκτρονική και έντυπη μορφή. Μπορείτε, επίσης, να λάβετε αντίγραφα 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 *Vízsugaras 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 얻을수 있습니다.

NE (NEDERLANDS/DUTCH)

WAARSCHUWING! Lees voordat u Hypertherm-apparatuur 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 p*odręczniku 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 rádiofrekvencii* (80945C).

Kópia návodu, ktorá je dodávaná s produktom, môže mať elektronickú alebo tlačenú podobu. Kópie návodov, vo všetkých dostupných jazykoch, sú k dispozícii aj v sekcii z „knižnice 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 P*riročniku 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 pronađete 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

สินค้าอาจมีสำเนาคู่มือในรูปแบบอิเล็กทรอนิกส์และแบบสิ่งพิมพ์แนบมาด้วย 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 www.hypertherm.com 的 「文檔資料庫」內獲取所有手冊的多語種複本。

Contents

Cut Charts 17

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.

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

The cut charts in this manual are for reference purposes. Refer to the electronic cut charts that are on your CNC or web interface for the most reliable process-selection options.

Graphics in this section are for reference only.

Hypertherm's cut charts are designed to give the best quality with minimal dross. However, because of differences in cutting system installations and materials, it can be necessary to adjust the settings to get the results that you want.

If you have questions about how to make adjustments to process settings and consumable choices, contact your cutting machine supplier or regional Hypertherm Technical Service team.

Pierce delay time

The pierce delay times that are in the cut charts are estimated with moderately worn consumables. If your consumable parts have more or less wear, it can be necessary to adjust the settings to get the results that you want.

Consumables naturally deteriorate and become worn from use. As this occurs, the time necessary to pierce the workpiece increases.

Pierce height and transfer height

For most processes, the torch transfers the arc to the workpiece from the pierce height and then moves to cut height after the pierce-delay time expires. For some of the thickest materials that can be pierced, the transfer height is used to position the torch closer to the workpiece. This creates a more reliable arc. After arc transfer, the torch moves to pierce height for piercing, followed by cut height for cutting.

Kerf compensation

All cut charts include kerf compensation values. You can use these values with a controller to offset the cut path and produce a part to the desired size. The kerf compensation values that are in the cut charts are estimated with new consumables. If your consumable parts have more wear, it may be necessary to change the kerf compensation setting to get the results you want.

Cut category

Use the cut category in the cut charts to help you choose the process that matches your needs for cut quality and speed based on material type and thickness.

Edge starts are recommended for processes that have a cut category of 4 or 5.

Arc voltage

The arc voltage that is in the cut charts is for reference and estimated on an average cutting system configuration. Lead length can affect actual arc voltage. If the leads for your XPR™ cutting system are shorter or longer than average, it can be necessary to adjust the settings to get the results that you want.

HyDefinition® inox (HDi) vented processes

Cut charts for HyDefinition vented processes are developed on SAE grade 304L stainless steel. When cutting other grades of stainless steel, adjustments can be necessary to get the best cut quality.

If you decide that it is necessary to adjust a pre-programmed setting, use offset commands to make incremental changes to the original value. Manual selection of process settings is not recommended.

Cut charts for HyDefinition vented processes are listed by amperage.

How to use cut charts

Electronic cut charts are available on the cut chart screen of your CNC or XPR web interface.

For information about how to find electronic cut charts, refer to the instruction manual that came with your CNC.

Hard copy cut charts are available in this manual. They start on page 29.

The cut charts in this manual are for reference purposes. Always use the electronic cut charts that appear on your CNC or XPR web interface for the most complete and accurate process-selection information.

Standard-position cutting, marking, and piercing cut charts

Use the cut charts for guidance about process selection, especially if the default process ID settings are not satisfactory for your application.

The pre-programmed settings that come with a process ID are designed to give the best balance between quality and productivity with consumables that are in average condition.

The results that you want from a process can influence process selection. In some cases, cut quality is important. In other cases, speed is important. Often, the best choice balances these requirements. Refer to Process selection on page 24.

Process core thickness (PCT)

The cut chart for every cutting process contains a range of possible thicknesses. Process engineers work to optimize a range of thicknesses (process category 1 for XPR). This optimized range is called the process core thicknesses (PCT). Thicknesses greater and less than the PCT can have varied results relative to cut quality, cut speed, and piercing capability.

Process categories

The XPR cut charts have up to 5 process categories. Each category has a unique process category number (1 – 5) that correlates to the performance that you can expect when you select this process. The process category number for the process that you choose changes the quality-speed balance.

For best results, Hypertherm recommends that you select process category number 1 whenever possible. Category 1 represents an optimized thickness (or PCT) for that cut process with the overall best balance of cut quality and cut speed.

Table 1 on page 21 describes the results that you can expect with different process category numbers.

Bevel cutting

All consumable processes are capable of up to 52° bevel cuts. Choose bevel cutting settings (such as speed) from the cut chart, based on the effective thickness of the actual bevel cut through the material.

It can be necessary to compensate the arc voltage, based on the actual effective cut height and thickness.

For the best bevel-cutting results, Hypertherm recommends the use of its True Bevel technology. With True Bevel technology, you get the cutting settings designed for the desired bevel angles and part sizes. For more information, refer to *True Bevel technology – XPR bevel compensation charts* (809890) and Torch geometry for bevel cutting on page 118.

Hypertherm recommends a clearance of 2.5 mm (0.098 in.) between the torch and the workpiece during bevel cutting.

Arc voltage

Arc voltages provided in the cut charts are for reference only. Actual arc voltages will vary with system configuration.

Pierce settings

Pierce settings in the cut charts are based on standard-position torch angles (at a 90° angle to the workpiece).

Table 1 – Process category options and expected quality-speed results for ferrous (mild steel) processes

Process category number	Process category condition	Category description	Quality	Speed
Category 1	Process Core Thickness (PCT)	▪ Best overall balance of productivity and cut quality. ▪ The process is optimized for this thickness. ▪ Expect cut speeds that range from 2,030 mm/min – 3,810 mm/min (80 in/min – 150 in/min). ▪ Dross free, in most cases.	Very good	Very good
Category 2	Thicker than PCT	▪ Good choice when edge quality is more important than speed. ▪ Expect cut speeds that are slower than 2,030 mm/min (80 in/min). ▪ Expect some low-speed dross.	Very good – excellent	Lower
Category 3	Thinner than PCT	▪ Good choice when speed is more important than edge quality. ▪ Expect cut speeds that are faster than 3,810 mm/min (150 in/min). ▪ Dross-free results in most cases.	Lower	Higher
Category 4	Edge Start Only	▪ Edge start is required. ▪ Thick, low-speed dross is likely.	Good	Low
Category 5	Severance	▪ This is the maximum thickness for these processes. ▪ Edge start is required. ▪ Expect cut speeds that are slower than 250 mm/min (10 in/min). ▪ Cut-edge quality can be rough. ▪ Expect significant dross.	Very low	Very low

In general, Hypertherm recommends lower amperage processes for the best cut-edge quality, and higher amperage processes for the best dross-free cutting. When speed is more important than quality use a higher-amperage process. Refer to the cut charts for guidance.

Table 2 – Process category options and expected quality-speed results for non-ferrous processes

Process category number	Process category condition	Category description	Quality	Speed
Category 1	Process Core Thickness (PCT)	▪ Whenever possible, select Category 1 for optimal edge quality and speed, with minimal dross. ▪ The process is optimized for this thickness. ▪ Expect cut speeds that range from 1,016 mm/min – 3,048 mm/min (40 in/min – 120 in/min). ▪ Dross free, in most cases.	Very good – excellent	Very good
Category 2	Thicker than PCT	▪ In most situations, you can expect square cut edges with sharp top edges. ▪ Darker edge color is possible with stainless steel. ▪ Expect cut speeds that are slower than 1,016 mm/min (40 in/min). ▪ Expect some dross.	Good –very good	Lower
Category 3	Thinner than PCT	▪ Select Category 3 when speed is more important than edge quality. ▪ Expect cut speeds that are faster than 3,048 mm/min (120 in/min). ▪ Expect some dross.	Lower	Higher
Category 4	Edge Start Only	▪ Edge start is required. ▪ Darker edge color is possible with stainless steel. ▪ Thick dross is likely.	Good	Low
Category 5	Severance	▪ This is the maximum thickness for these processes. ▪ Edge start is required. ▪ Expect cut speeds that are slower than 250 mm/min (10 in/min). ▪ Cut-edge quality can be rough. ▪ Expect significant dross. ▪ Thick-metal cutting techniques can be necessary.	Very low	Very low

In general, Hypertherm recommends dross-free processes. Non-ferrous dross is very difficult to remove. Depending on the gas-connect console, the XPR cutting system offers the following non-ferrous cutting processes: Air/Air, N_2/N_2, N_2/H_2O, $F5/N_2$ and mixed-fuel gas/N_2. Refer to the Cut Charts for guidance.

Table 3 – Process recommendations for cut quality, based on non-ferrous metal thickness and type

Metal thickness		Metal type	
Metric (mm)	**English (in)**	**Stainless steel**	**Aluminum**
1	0.036	40 A N_2/N_2	40 A Air/Air
3	0.105		
3.5	0.125	60 A N_2/N_2	60 A Air/Air
5	0.188		60 A N_2/N_2
6	0.250	80 A F5/N_2	80 A N_2/H_2O
10	0.375		
12	0.500	130 A H_2-mix/N_2	130 A N_2/H_2O
16	0.625	170 A H_2-mix/N_2	170 A N_2/H_2O
20	0.750	300 A H_2-mix/N_2	
25	1.000		300 A N_2/H_2O
50	2.000		
75	3.000		–

Process selection

All of the XPR cutting processes have a unique process identification (process ID) number. Each process ID aligns with a specific set of pre-programmed values in the cut chart database in the plasma power supply memory.

Processes in the database can be selected by:

- Material type and thickness
- Cutting current
- Plasma and shield gas types
- Process category

When you select a process ID from the CNC or the Operate screen in the XPR web interface, the cutting system automatically activates the pre-programmed settings for that process based on the values in the database.

On-screen lists of process options let you select, monitor, and control processes directly from the CNC or the Operate screen in the XPR web interface.

Manual selection of process settings is not necessary in most cases. However, you can adjust some pre-programmed settings with override or offset commands, within limits. For information about how to do this, refer to the instruction manual that came with your XPR cutting system.

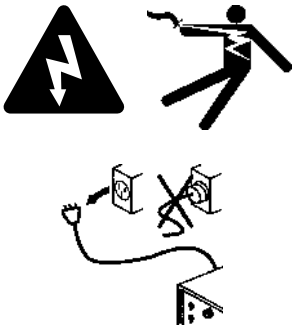
How to use process IDs to access optimal settings

When you select a process ID from the CNC or XPR web interface, you automatically get the optimized settings that Hypertherm recommends for that process.

The pre-programmed settings come from Hypertherm's extensive laboratory tests. Because of differences in cutting systems, materials, and consumables, it is sometimes necessary to adjust the settings. However, in most cases, you can expect the best results when you use the default settings that come with a process ID.

How to install the consumables

⚠ WARNING



ELECTRIC SHOCK CAN KILL

Disconnect electrical power before doing installation or maintenance.

The line-disconnect switch must REMAIN in the OFF position until all installation or maintenance steps are complete.

See the *Safety and Compliance Manual* (80669C) for more safety information.

The torch head that comes with the XPR torch assembly kit (428846 or 428488) has the XPR 170 A mild steel consumable parts or the XPR 300 A mild steel consumable parts pre-installed.

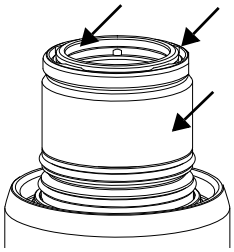
For guidance about how to choose the best consumables for your cutting or marking needs, refer to How to use cut charts on page 19. If you need to change the consumable parts, follow this procedure.

If you need to exchange consumable parts, follow these steps.

1. Remove the power from the cutting system:
   a. Set the line-disconnect switch to the OFF position.
   b. Make sure that the power-indicator LED is not illuminated on the plasma power supply, gas connect console, or torch connect console.
2. If you have not already done so, choose the best consumables for your cutting or marking needs.
3. Apply a thin film of silicone lubricant (027055) to each O-ring on every consumable.

   The O-rings should look shiny. Too much lubricant can prevent gas flow. Remove excess lubricant if found.

4. Use a clean, lint-free cloth to wipe the internal and external surfaces of the torch.



5. Install the consumables on the torch as shown in Figure 1:
   a. Make sure that the water tube is installed.
   b. Install the electrode ❶. Use a consumable tool (104119 or 429013) to tighten the electrode to between 2.3 N·m – 2.8 N·m (20 in·lbf – 25 in·lbf) torque.

A loose or overtightened electrode can cause torch damage. Hypertherm recommends between 2.3 N·m – 2.8 N·m (20 in·lbf – 25 in·lbf) torque to tighten an electrode.

Hypertherm offers an electrode torque tool (429013) for tightening XPR torch components. It is pre-calibrated at 2.5 N·m (22.1 in·lbf).

c. Install the swirl ring ❷ into the nozzle.

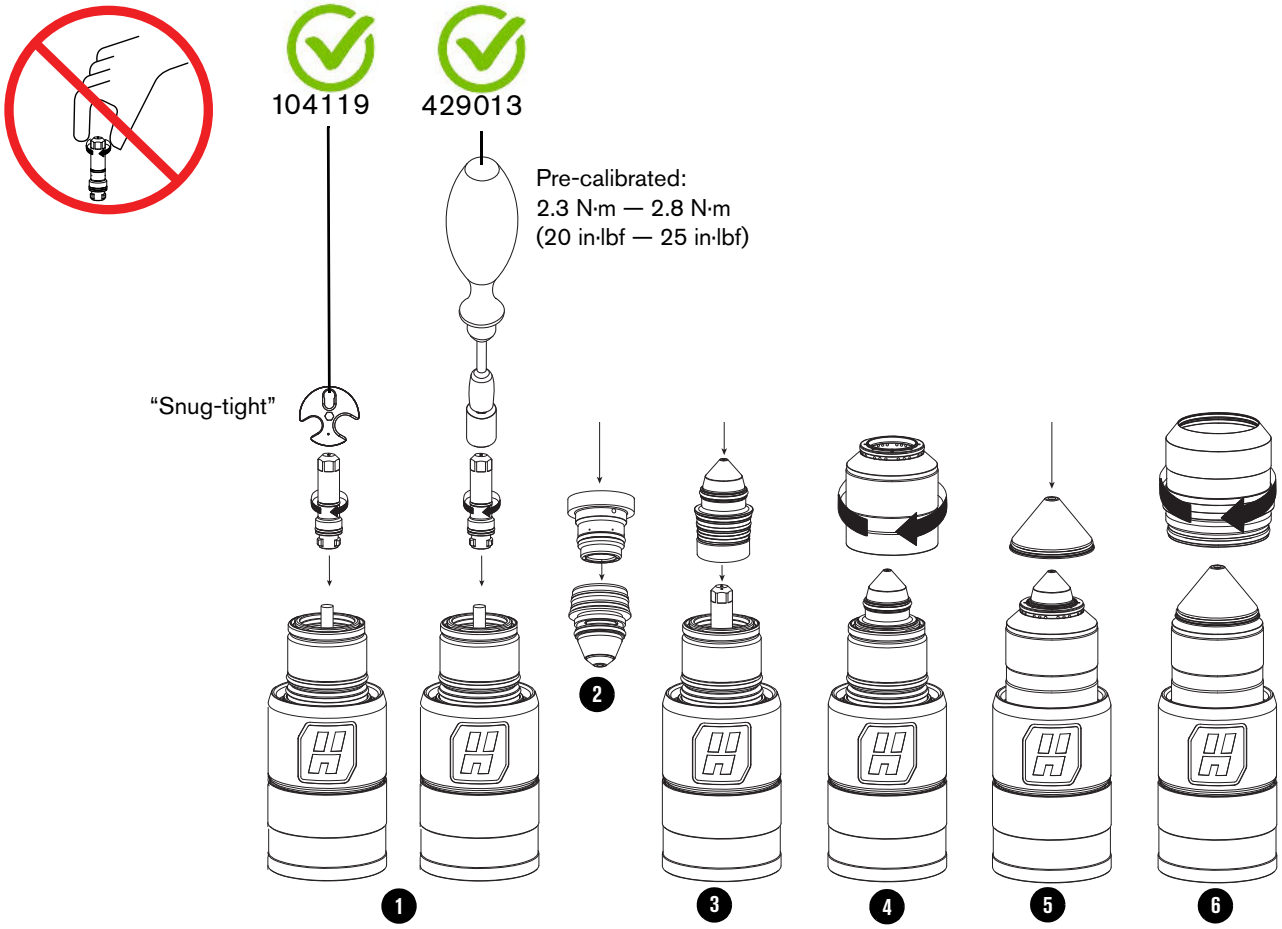
d. Install the nozzle and swirl ring assembly ❸.

e. Install the nozzle retaining cap ❹.

f. Install the shield ❺.

g. Install the shield cap ❻.

Figure 1 – Install the consumables on the torch



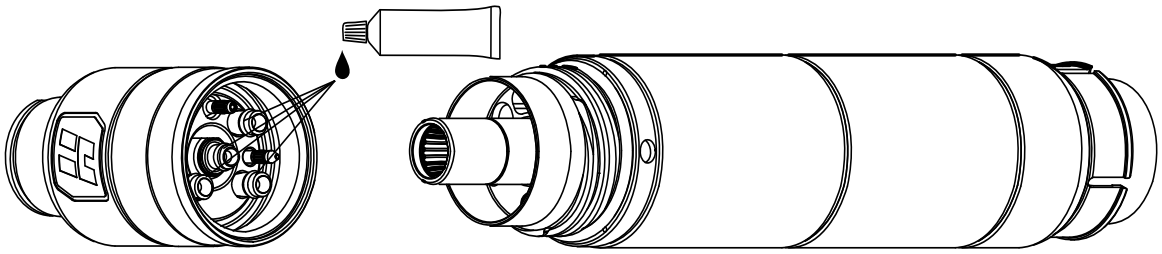
6. Install the torch in the torch receptacle. Refer to How to install the torch into the torch receptacle on page 27

7. Install the torch and attached receptacle in the torch mounting bracket. Refer to *How to install the torch in the torch mounting bracket* in the XPR170 Instruction Manual (810060) or XPR300 Instruction Manual (809480).

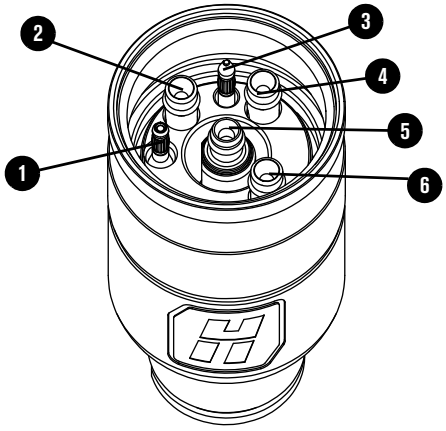
How to install the torch into the torch receptacle

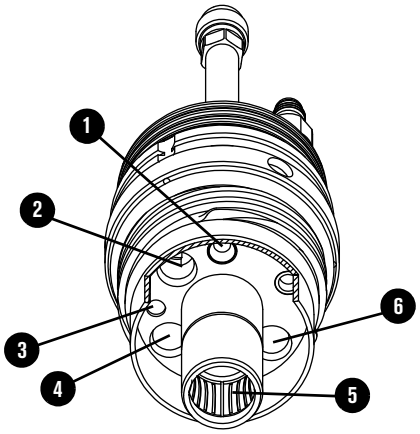
1. Apply a thin film of silicone lubricant (027055) to each of the 4 O-rings inside of the torch body.

Do **not** apply silicone to the brass electrical connectors.



The O-rings should look shiny. Too much lubricant can prevent gas flow. Remove excess lubricant if found.





1 Pilot arc

2 Coolant return

3 Ohmic

4 Shield gas

5 Coolant supply

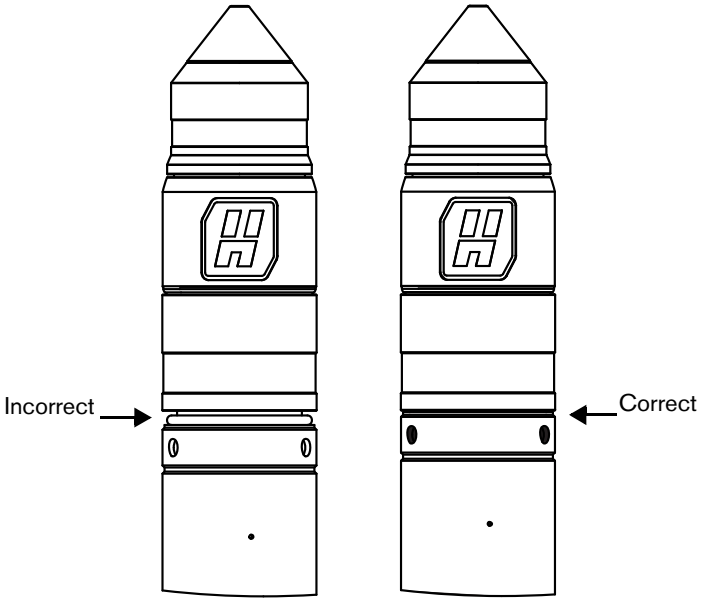
6 Plasma gas

2. Put the torch body into the torch receptacle and hand-tighten:

a. Rotate the torch body with slight upward force until you feel it engage into position in the receptacle.

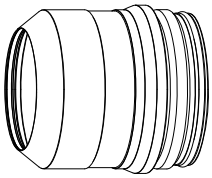
b. Hand tighten the torch-coupler nut until the coupler nut no longer rotates. Hand tighten only. Do **not** use tools.

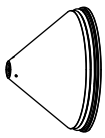
3. Make sure that the torch body is fully inserted into the torch receptacle. There should be no space between the torch body and torch receptacle.

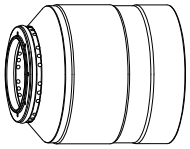


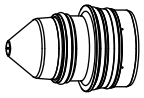
Cut charts for ferrous (mild steel) processes – above water

Mild steel – 30 A – O_2 Plasma / O_2 Shield – above water (Core™, VWI™, OptiMix™)

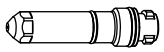

Shield retaining cap
420200


Shield
420228


Nozzle retaining cap
420365


Nozzle
420225


Swirl ring
420407


Electrode
420222


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	O_2
Pre flow	20/43	19/40
Pierce flow	20/43	19/40
Cut flow	–	27/58

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR Process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
mm				Plasma gas	Shield gas	mm/min	volts	mm	mm	seconds	mm	mm
0.5	3	1051	28	76	24	5348	106	2.54	2.54	0.1	1.30	1.5
0.8						4217	107			0.2		1.5
1						3604	108			0.3		1.6
1.2						2847	109					1.5
1.5						2198	111					1.6
2						1490	116	3.05	3.05	0.4	1.52	1.7
2.5						1325	116					1.7
3	1					1153	117			0.5		1.8
4	2					908	120	3.37	3.37	0.6		1.9
5						521	123	3.81	3.81	0.7		2.0

Mild steel – 30 A – O_2 Plasma / O_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

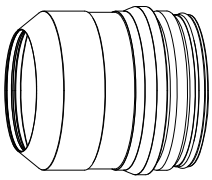
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.018 (26GA)	3	1051	28	76	24	215	106	0.100	0.100	0.1	0.050	0.06
0.024 (24GA)						200	106					0.06
0.030 (22GA)						170	107			0.2		0.06
0.036 (20GA)						155	108			0.3		0.06
0.048 (18GA)						110	109					0.06
0.060 (16GA)						85	111					0.06
0.075 (14GA)						60	116	0.120	0.120	0.4	0.060	0.07
0.105 (12GA)	1					50	116					0.07
0.135 (10GA)						40	118			0.5		0.07
3/16	2					30	122	0.150	0.150	0.7		0.08

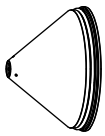
Marking

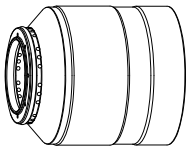
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	1.9 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.07 in

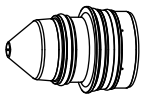
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	Air	9010	9	90	10	2.54 mm	2540 mm/min	85 V	1.00 mm
English	Ar	Air	9010	9	90	10	0.100 in	100 in/min	85 V	0.04 in

Mild steel – 50 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix)

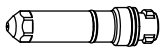

Shield retaining cap
420200

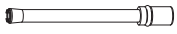

Shield
420237


Nozzle retaining cap
420365


Nozzle
420234


Swirl ring
420233


Electrode
420231


Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	20 / 42	–	35 / 74
Pierce flow	20 / 42	–	35 / 74
Cut flow	–	24 / 52	31 / 67

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR Process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
mm				Plasma gas	Shield gas	mm/min	volts	mm	mm	seconds	mm	mm
2.4	3	1060	50	72	44	4354	113	3.05	3.05	0.4	1.52	1.5
2.5						4262	113					1.5
3						3820	113			0.5		1.5
3.5	1					3616	112					1.5
4						3144	113					1.6
5		1061			30	2322	115					1.7
6	2					1919	117	4.06	4.06	0.6	2.03	1.7
7						1622	119					1.8
8						1369	120			0.7		1.8

Mild steel – 50 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

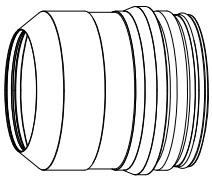
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.105 (12GA)	3	1060	50	72	44	155	113	0.120	0.120	0.4	0.060	0.06
0.135 (10GA)	1					145	112			0.5		0.06
3/16		1061			30	95	114					0.07
1/4	2					70	118	0.160	0.160	0.6	0.080	0.07
5/16						55	120			0.7		0.07

Marking

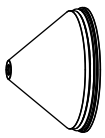
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	2.0 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.08 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	Air	9018	12	70	10	2.54 mm	2540 mm/min	81 V	1.3 mm
English	Ar	Air	9018	12	70	10	0.100 in	100 in/min	81 V	0.05 in

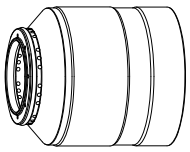
Mild steel – 80 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix)



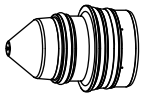
Shield retaining cap
420200



Shield
420246



Nozzle retaining cap
420365



Nozzle
420243

Swirl ring
420242

Electrode
420240

Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	38/80	–	49/105
Pierce flow	–	38/80	49/105
Cut flow	–	38/80	46/98

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTING						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	1001	18	82	72	5582	114	4.06	4.06	0.2	2.03	1.8
4		1002			68	4303	114					1.8
5						3774	114					1.8
6	1	1003			56	3048	116			0.3		1.8
7						2648	117					1.9
8		1004			52	2417	118			0.4		2.0
9						2081	119			0.5		2.1
10	2	1005			46	1807	121	4.37	4.37			2.1
12						1405	123	5.08	5.08	0.7		2.3

Mild steel – 80 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

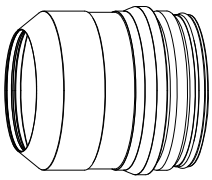
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	1001	18	82	72	180	114	0.160	0.160	0.2	0.080	0.07
3/16		1002			68	155	114					0.07
1/4	1	1003			56	110	117			0.3		0.08
5/16		1004			52	96	118			0.4		0.08
3/8		1005			46	75	120			0.5		0.08
1/2	2					55	123	0.200	0.200	0.7		0.09

Marking

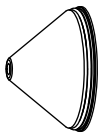
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark width
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	1.9 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.07 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark width
					Plasma gas	Shield gas				
Metric	Ar	Air	9001	15	50	10	3.05 mm	2540 mm/min	78 V	1.4 mm
English	Ar	Air	9001	15	50	10	0.120 in	100 in/min	78 V	0.06 in

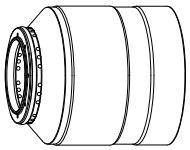
Mild steel – 130 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix)



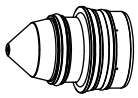
Shield retaining cap
420200



Shield
420255

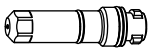


Nozzle retaining cap
420365



Nozzle
420252

Swirl ring
420242



Electrode
420249

Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	33 / 69	–	85 / 180
Pierce flow	–	31 / 65	82 / 173
Cut flow	–	31 / 65	92 / 195

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltages	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	1101	37	92	45	6502	134	5.08	5.08	0.1	2.54	2.2
4						5557	134	5.30	5.30		2.65	2.2
5						4681	134	5.59	5.59	0.2	2.79	2.3
6	1	1102			27	4036	135			0.3		2.3
7		1103			82	3602	134	5.80	5.80			2.3
8						3282	134	6.10	6.10			2.4
10		1104			77	2680	136	6.25	6.25	0.4		2.5
12		1105			72	2200	137	6.60	6.60	0.5		2.6
15	2					1665	142	7.62	7.62	0.7	3.81	2.8
20						1044	149			1.1		3.3
25						546	162			1.8	4.03	4.0
30	4	1106			58	434	165	Edge start		0.3	4.57	4.4
32						398	165					4.6
38	5	1107			50	256	174					5.7

Mild steel – 130 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

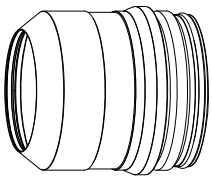
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	1101	37	92	45	240	134	0.200	0.200	0.1	0.100	0.09
3/16						190	134	0.220	0.220	0.2	0.110	0.09
1/4	1	1102			27	150	135			0.3		0.09
5/16		1103			82	130	134	0.240	0.240			0.09
3/8		1104			77	110	136					0.10
1/2		1105			72	80	138	0.260	0.260	0.5		0.10
5/8	2					60	144	0.300	0.300	0.7	0.150	0.11
3/4						45	147			1.0		0.12
1						20	164			1.8	0.160	0.16
1-1/4	4	1106			58	16	165	Edge start		0.3	0.180	0.18
1-1/2	5	1107			50	10	174					0.23

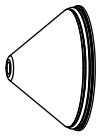
Marking

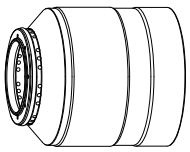
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	1.9 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.07 in

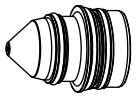
	Plasma gas	Shield gas	Process Id	Mark current	Cutflow		Marking height	Speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	Air	9001	15	50	10	3.05 mm	2540 mm/min	78 V	1.4 mm
English	Ar	Air	9001	15	50	10	0.120 in	100 in/min	78 V	0.06 in

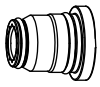
Mild steel – 170 A O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix)

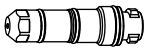

Shield retaining cap
420200

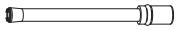

Shield
420513


Nozzle retaining cap
420365


Nozzle
420261


Swirl ring
420260


Electrode
420258


Water tube
420368

Flow rate (lpm/scfh)				
	N_2	O_2	Air	Ar
Pre flow	23 / 49	–	78 / 165	–
Pierce flow	–	33 / 69	96 / 202	67 / 140†
Cut flow	–	33 / 69	50 / 105	–

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	1151	45	78	79	5080	126	6.60	6.60	0.3	2.79	2.7
7						4768	127					2.7
8						4288	128					2.7
10	1	1152				3461	128					2.8
12		1153			77	3061	129			0.5		2.8
15						2277	133	8.13	8.13	0.6	4.06	2.8
20	2					1575	138			0.8		3.3
25						1175	142	10.16	10.16	1.0	4.32	3.6
30		1155			74	867	144			2.5	3.81	4.3
32						752	145			3.0		4.6
34						672	147			4.5		4.6
36†		1157	30		74	592	149			5.0	4.32	4.7
40†						462	153		19.05	7.0		4.9
36	4	1155	45			592	149	Edge start		0.3		4.7
38						512	151					4.7
40						462	153					5.0
44		1156			71	366	157					5.4
50	5					267	162			0.5		5.9
60						152	170					6.9

† Argon assist.

Mild steel – 170 A O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	1151	45	78	79	200	127	0.260	0.260	0.3	0.110	0.11
5/16						170	128					0.11
3/8	1	1152				140	128					0.11
1/2		1153			77	115	129			0.5		0.10
5/8						80	135	0.320	0.320	0.6	0.160	0.11
3/4	2					65	137			0.8		0.13
1						45	142	0.400	0.400	1.0	0.170	0.14
1-1/4		1155			74	30	145			3.0	0.150	0.18
1-3/8						25	147			5.0	0.160	0.18
1-1/2†		1157	30			20	151		0.750		0.170	0.18
1-9/16†						17	153			7.0		0.19
1-1/2	4	1155	45			20	151	Edge start		0.3		0.19
1-3/4		1156			71	14	157					0.22
2	5					10	163			0.5		0.24
2-3/8						6	170					0.27

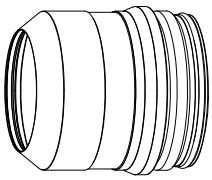
† Argon assist.

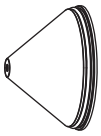
Marking

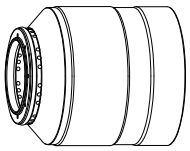
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	2.0 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.08 in

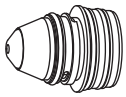
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark width
					Plasma gas	Shield gas				
Metric	Ar	Air	9008	18	15	15	2.54 mm	2540 mm/min	79 V	2.0 mm
English	Ar	Air	9008	18	15	15	0.100 in	100 in/min	79 V	0.08 in

Mild steel – 220 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix)

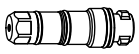

Shield retaining cap
420200


Shield
420273


Nozzle retaining cap
420365


Nozzle
420270


Swirl ring
420406


Electrode
420276


Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	22 / 46	–	71 / 150
Pierce flow	–	49 / 103	71 / 150
Cut flow	–	49 / 103	64 / 136

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	1252	30	90	45	6100	155	9.65	9.65	0.3	3.05	3.1
7						5630	155					3.2
8						4910	155					3.2
10		1253			38	3720	155					3.5
12	1	1254			32	3320	155			0.4		3.1
15		1251			26	2900	155			0.5	2.79	3.2
16						2770	155					3.2
20						2060	158			0.8	3.05	3.5
25	2					1560	160			1.1		3.8
30						1160	167		11.68	1.7	4.57	4.2
38						760	176		16.50	3.5		4.8
40	4	1255			24	690	178	Edge start		1.5		5.0
50						330	185					5.5
60	5					158	189					6.0

Mild steel – 220 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

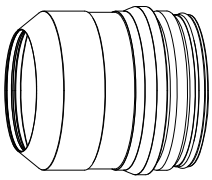
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	1252	30	90	45	240	155	0.380	0.380	0.3	0.120	0.12
3/8		1253			38	150	155					0.13
1/2	1	1254			32	125	155			0.4	0.110	0.12
5/8		1251			26	110	155			0.5		0.13
3/4						85	158			0.7	0.120	0.14
7/8						75	160			0.8		0.14
1	2					60	160			1.1		0.15
1-1/4						40	170		0.500	1.9	0.180	0.17
1-1/2						30	176		0.650	3.5		0.19
1-3/4	4	1255			24	20	182	Edge start		1.5		0.21
2						12	185					0.22
2-1/4	5					8	188					0.23
2-1/2						6	190					0.25

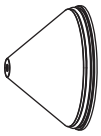
Marking

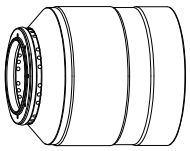
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	Air	8007	16	10	10	2.54 mm	6350 mm/min	125 V	2.8 mm
English	N_2	Air	8007	16	10	10	0.100 in	250 in/min	125 V	0.11 in

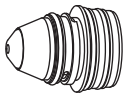
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	Air	9007	22	25	30	2.79 mm	2540 mm/min	60 V	1.8 mm
English	Ar	Air	9007	22	25	30	0.110 in	100 in/min	60 V	0.07 in

Mild steel – 300 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix)

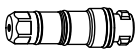

Shield retaining cap
420200


Shield
420491


Nozzle retaining cap
420365


Nozzle
420279


Swirl ring
420406


Electrode
420276


Water tube
420368

Flow rate (lpm/scfh)				
	N_2	O_2	Air	Ar
Pre flow	21 / 45	–	57 / 122	–
Pierce flow	–	45 / 95	57 / 122	75 / 155†
Cut flow	56 / 120*	45 / 95	57 / 122	–

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
10	3	1207	30	85	30	4500	147	9.50	9.50	0.3	3.30	3.2
12*		1202			22	3940	147			0.4	3.80	4.7
15	1	1201		90	26	3440	148					3.6
16						3280	150			0.5		3.7
20						2550	153			0.6	3.30	4.2
25						1950	155			0.8		4.4
30	2	1203	34		34	1530	157		12.50	1.5		5.1
40						940	166		16.50	3.2	4.50	5.8
50* †		1205	30	85	14	560	175		33.00	8.0	6.40	6.3
50*	4	1204				560	175	Edge start		1.5	4.50	6.3
60*						385	183					6.6
70*	5					250	192				3.30	8.0
80*						165	204					9.5

* N_2 used as shield gas.

† Argon assist.

Mild steel – 300 A – O_2 Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/8	3	1207	30	85	30	180	147	0.380	0.380	0.3	0.130	0.13
1/2*		1202			22	155	147			0.4	0.150	0.19
5/8	1	1201		90	26	130	151			0.5	0.130	0.15
3/4						105	154			0.7		0.16
7/8						90	154					0.19
1						75	156	0.300		1.0		0.18
1-1/4	2	1203	34		34	55	163		0.500	1.8	0.180	0.20
1-1/2						40	165		0.650	3.0		0.22
1-3/4		1204	30	85	14	30	170		0.850	4.5		0.22
2* †		1205				21	175		1.300	8.0	0.250	0.24
2*	4	1204				21	175	Edge start		1.5		0.24
2-1/4*						17	181				0.180	0.26
2-1/2*						14	185					0.27
2-3/4*	5					10	192					0.31
3*						7	195					0.38

* N_2 used as shield gas.

† Argon assist.

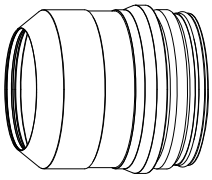
Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	Air	8007	16	10	10	2.54 mm	6350 mm/min	130 V	2.8 mm
English	N_2	Air	8007	16	10	10	0.100 in	250 in/min	130 V	0.11 in

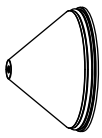
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	Air	9007	22	25	30	2.79 mm	2540 mm/min	70 V	1.8 mm
English	Ar	Air	9007	22	25	30	0.110 in	100 in/min	70 V	0.07 in

Cut charts for non-ferrous (stainless steel) processes – above water

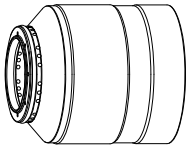
Stainless steel – 40 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)



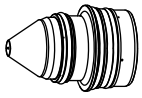
Shield retaining cap
420200



Shield
420291



Nozzle retaining cap
420365



Nozzle
420288

Swirl ring
420314

Electrode
420303

Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	49 / 103
Pierce flow	57 / 120
Cut flow	71 / 152

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
mm				Plasma gas	Shield gas	mm/min	volts	mm	mm	seconds	mm	mm
0.8	3	2015	30	75	85	6100	124	5.08	5.08	0.2	3.60	1.4
1						5715	124				3.50	1.3
1.2						5345	124				3.40	1.3
1.5						4818	122				3.30	1.2
2						4014	127				3.10	1.2
2.5	1	2014		90	68	3302	129			0.3	2.90	1.2
3						2683	130				2.80	1.3
4	2	2013			64	1724	129				2.60	1.3
5		2012			55	1136	129				2.54	1.3
6						918	132			0.6		1.4

Stainless steel – 40 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

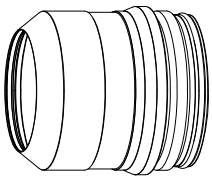
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.036 (20GA)	3	2015	30	75	85	240	124	0.200	0.200	0.2	0.140	0.05
0.048 (18GA)						210	124					0.05
0.06 (16GA)						180	122				0.120	0.05
0.075 (14GA)						160	127					0.05
0.105 (12GA)	1	2014		90	68	120	130			0.3	0.100	0.05
0.135 (10GA)		2013			64	85	130					0.05
3/16	2	2012			55	60	128					0.05
1/4						32	133			0.6		0.06

Marking

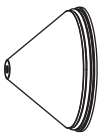
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	2.1 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.08 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9002	9	90	10	2.54 mm	6350 mm/min	67 V	1.0 mm
English	Ar	N_2	9002	9	90	10	0.100 in	150 in/min	67 V	0.04 in

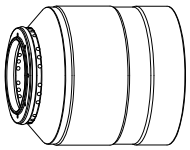
Stainless steel – 60 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)



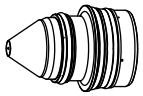
Shield retaining cap
420200



Shield
420309

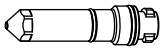


Nozzle retaining cap
420365

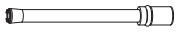


Nozzle
420297

Swirl ring
420323



Electrode
420303



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	48 / 102
Pierce flow	63 / 134
Cut flow	72 / 154

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
2.5	3	2026	30	82	65	3105	124	5.08	5.08	0.3	3.20	1.5
3	1					2776	124				2.80	1.5
4						2245	123				2.54	1.5
5		2025			55	1886	124					1.5
6	2	2024			45	1697	126			0.6		1.4

Stainless steel – 60 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

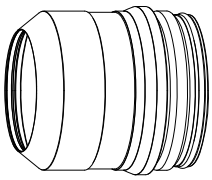
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR Process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.105 (12GA)	3	2026	30	82	65	120	124	0.200	0.200	0.3	0.120	0.06
0.135 (10GA)	1					95	123				0.100	0.06
3/16		2025			55	80	124					0.06
1/4	2	2024			45	65	126			0.6		0.06

Marking

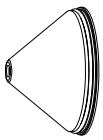
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc Volt	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/min	120 V	1.8 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.07 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9009	11	90	10	2.54 mm	3810 mm/min	69 V	1.1 mm
English	Ar	N_2	9009	11	90	10	0.100 in	150 in/min	69 V	0.04 in

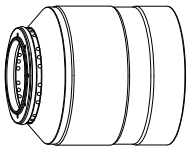
Stainless steel – 60 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)



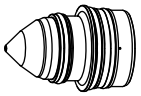
Shield retaining cap
420200



Shield
420300

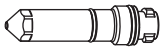


Nozzle retaining cap
420365



Nozzle
420296

Swirl ring
420323



Electrode
420303

Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	27 / 57	0.21 / 3*
Pierce flow	34 / 72	0.21 / 3*
Cut flow	20 / 42	0.4 / 7*

*Gallons per hour (gph)

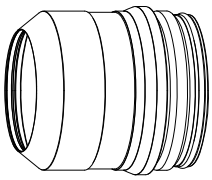
Metric

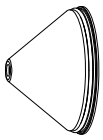
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	1	2028	10	80	30	3065		5.08	5.08	0.3	2.54	1.5
4						2062						1.6
5						1516						1.7
6	2					1179	132			0.6		1.9

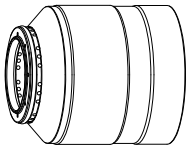
English

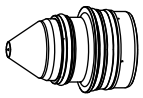
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.105 (12GA)	3	2028	10	80	30	120	120	0.200	0.200	0.3	0.120	0.06
0.135 (10GA)	1					100	124				0.100	0.06
3/16						80	129					0.06
1/4	2					50	132			0.6		0.07
3/8						20	144			0.8	0.120	0.09

Stainless steel – 60 A – F5 Plasma / N_2 Shield – above water (VWI, OptiMix)

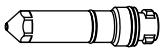

Shield retaining cap
420200

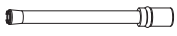

Shield
420309


Nozzle retaining cap
420365


Nozzle
420297


Swirl ring
420323


Electrode
420303


Water tube
420368

Flow rate (lpm/scfh)		
	F5	N_2
Pre flow	–	55 / 117
Pierce flow	40 / 84	53 / 114
Cut flow	29 / 62	88 / 188

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
2.5	3	2023	30	82	55	3177	132	5.08	5.08	0.2	3.20	1.4
3	1					2763	132			0.3	3.10	1.4
4		2022			45	2217	132				3.05	1.4
5		2021			40	1869	132			0.5	2.90	1.4
6	2	2020			35	1626	133			0.6	2.80	1.4
7						1445	133				2.60	1.4
8						1305	133			0.7	2.54	1.4
10						1100	134			0.8	2.30	1.4

Stainless steel – 60 A – F5 Plasma / N_2 Shield – above water (VWI, OptiMix) (continued)

English

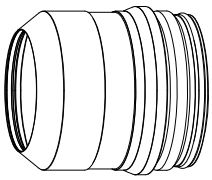
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.105 (12GA)	3	2023	30	82	55	120	132	0.200	0.200	0.3	0.140	0.05
0.135 (10GA)	1	2022			45	95	132				0.120	0.06
3/16		2021			40	80	132				0.100	0.06
1/4	2	2020			35	60	133			0.6		0.06
5/16						52	133			0.7	0.080	0.06
3/8						45	133			0.8		0.06

Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/min	120 V	1.8 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.07 in

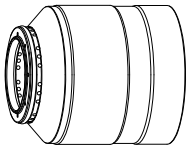
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9003	11	90	10	2.54 mm	2540 mm/min	67 V	1.3 mm
English	Ar	N_2	9003	11	90	10	0.100 in	100 in/min	67 V	0.05 in

Stainless steel – 80 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)

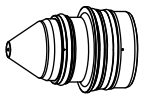


Shield retaining cap
420200

Shield
420309

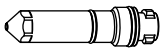


Nozzle retaining cap
420365

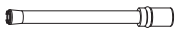


Nozzle
420306

Swirl ring
420323



Electrode
420303



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	51 / 108
Pierce flow	67 / 143
Cut flow	68 / 144

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2006	30	80	45	3820	118	5.08	5.08	0.3	2.54	1.5
4						3220	118					1.6
5		2007			40	2692	118			0.5	2.03	1.6
6	1					2237	116					1.5
7						1853	117					1.5
8						1543	118			0.6		1.6
9						1304	119					1.6
10	2					1138	121					1.6

Stainless steel – 80 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

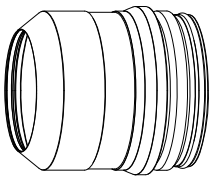
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	2006	30	80	45	140	118	0.200	0.200	0.3	0.100	0.061
3/16						110	118				0.080	0.064
1/4	1	2007			40	84	116			0.5		0.060
5/16						60	118			0.6		0.031
3/8						48	120					0.064

Marking

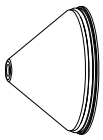
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/min	120 V	1.6 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.06 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9003	11	90	10	2.54 mm	2540 mm/min	67 V	1.3 mm
English	Ar	N_2	9003	11	90	10	0.100 in	100 in/min	67 V	0.05 in

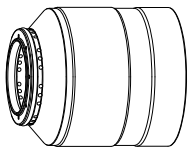
Stainless steel – 80 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)



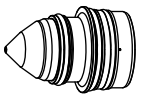
Shield retaining cap
420200



Shield
420300

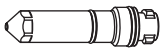


Nozzle retaining cap
420365

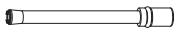


Nozzle
420290

Swirl ring
420323



Electrode
420303



Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	30 / 64	0.2 / 3*
Pierce flow	37 / 79	0.2 / 3*
Cut flow	24 51	0.4 / 6*

*Gallons per hour (gph)

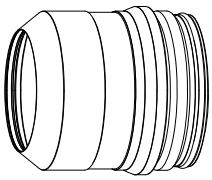
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2010	10	86	30	3820	118	5.08	5.08	0.3	2.03	1.8
4						3216	121					1.7
5						2677	123			0.5		1.8
6	1					2203	126					1.8
7						1794	128					1.9
8						1450	130			0.6		2.0
10	2					956	134					2.1
12		2011				722	137			0.8		2.1

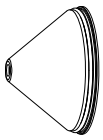
English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	2010	110	80	30	140	120	0.200	0.200	0.3	0.080	0.07
3/16						110	123					0.07
1/4	1					80	124			0.5		0.07
5/16						60	132			0.6		0.08
3/8						40	134					0.08
7/16	2	2010				31	136			0.8		0.08
1/2		2011		86		28	138					0.08

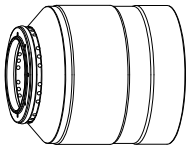
Stainless steel – 80 A – F5 Plasma / N_2 Shield – above water (VWI, OptiMix)



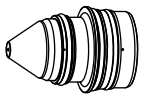
Shield retaining cap
420200



Shield
420309

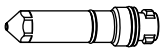


Nozzle retaining cap
420365

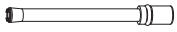


Nozzle
420306

Swirl ring
420323



Electrode
420303



Water tube
420368

Flow rate (lpm/scfh)		
	F5	N_2
Pre flow	–	52 / 110
Pierce flow	44 / 93	23 / 49
Cut flow	38 / 81	39 / 82

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2005	30	80	55	4248	125	5.08	5.08	0.3	3.05	1.7
4						3052	123					1.7
5		2004			45	2362	122				2.54	1.7
6	1					1916	124			0.5		1.8
8		2003			35	1376	128			0.6	2.03	1.8
10	2	2002	28		28	1065	134					1.7
12		2001	20	86	20	864	135			0.8		1.8

Stainless steel – 80 A – F5 Plasma / N_2 Shield – above water (VWI, OptiMix) (continued)

English

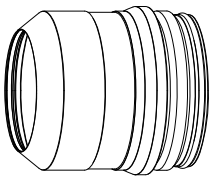
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	2005	30	80	55	140	124	0.200	0.200	0.3	0.120	0.07
3/16						105	122				0.100	0.07
1/4	1	2004			45	70	124			0.5		0.07
5/16		2003			35	55	129			0.6	0.080	0.07
3/8		2002	28		28	40	132					0.07
7/16	2					36	135			0.8		0.07
1/2		2001	20	86	20	34	134					0.07

Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/in	120 V	1.6 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.06 in

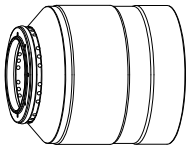
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9003	11	90	10	2.54 mm	2540 mm/min	67 V	1.3 mm
English	Ar	N_2	9003	11	90	10	0.100 in	100 in/min	67 V	0.05 in

Stainless steel – 130 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)

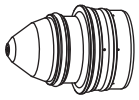


Shield retaining cap
420200

Shield
420318

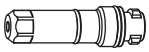


Nozzle retaining cap
420365

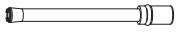


Nozzle
420315

Swirl ring
420314



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	92 / 195
Pierce flow	150 / 320
Cut flow	150 / 320

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2051	52	90	52	2413	16	6.10	6.10	0.4	2.54	2.3
7						2257	16					2.3
8						2017	168			0.5		2.4
10	1					1613	19					2.4
12						1453	1			0.6		2.4
15	2					1029	17			0.7	3.05	2.5
20						559				1.3		2.8

Stainless steel – 130 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

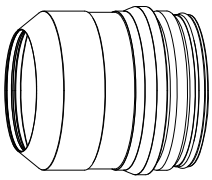
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltages	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2051	52	90	52	95	16	0.240	0.240	0.4	0.100	0.09
5/16						80	16			0.5		0.09
3/8	1					65	1					0.10
1/2						55	1			0.6		0.09
5/8	2					35	17			0.7	0.120	0.10
3/4						25	18			1.2		0.11

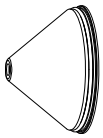
Marking

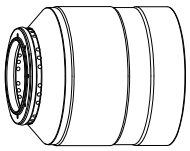
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8004	18	20	15	2.54 mm	6350 mm/min	145 V	1.7 mm
English	N_2	N_2	8004	18	20	15	0.100 in	250 in/min	145 V	0.07 in

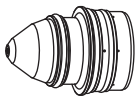
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9004	20	65	15	2.54 mm	3810 mm/min	101 V	2.0 mm
English	Ar	N_2	9004	20	65	15	0.100 in	150 in/min	101 V	0.08 in

Stainless steel – 130 A – N_2 Plasma / H_2O Shield – above water (VWI and OptiMix)

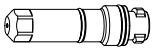

Shield retaining cap
420200

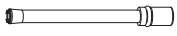

Shield
420469


Nozzle retaining cap
420365


Nozzle
420315


Swirl ring
420314


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	38 / 80	0.42 / 6.5*
Pierce flow	97 / 205	0.5 / 8*
Cut flow	97 / 205	0.5 / 8*

* Gallons per hour (gph)

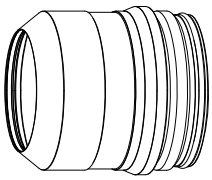
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2052	25	90	25	2413	1	5.08	5.08	0.2	2.54	2.3
7						2257	1			0.3	2.54	2.3
8						2017	1			0.4		2.4
10	1					1613	1			0.5		2.4
12						1453	1			0.6		2.5
15	2					937	1	6.35	6.35	0.7	3.05	2.8
20						457	1			1.3		3.6

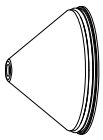
English

Material thickness	Cut category	SYSTEM SETTINGS				CNY SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2052	25	90	25	95	1	0.200	0.200	0.2	0.100	0.09
5/16						80	1			0.4		0.09
3/8	1					65	17			0.5		0.09
1/2						55	17			0.6		0.10
5/8	2					30	17	0.250	0.250	0.8	0.120	0.12
3/4						20	1			1.3		0.14

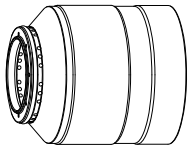
Stainless steel – 130 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix)



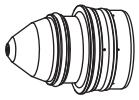
Shield retaining cap
420200



Shield
420318

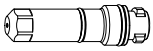


Nozzle retaining cap
420365

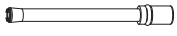


Nozzle
420315

Swirl ring
420323



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)			
	H_2	Ar	N_2
Pre flow	–	–	103 / 220
Pierce flow	8 / 17	12 / 25	150 / 320
Cut flow	8 / 17	12 / 25	150 / 320

Metric

Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
mm								mm/min	volts	mm	mm	seconds	mm	mm
6	3	2060	52	4	12	24	52	2413	163	5.08	5.08	0.3	2.54	2.6
7								1954	163					2.6
8								1834	164			0.4		2.6
10	1	2053	53	6	10		53	1613	166			0.5		2.6
12								1453	168			0.6		2.6
15	2	2061	50	8	12	20	52	1121	172	6.10	6.10	0.7	3.05	2.7
20								737	175	7.62	7.62	1.5	3.81	2.9

Stainless steel – 130 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix) (continued)

English

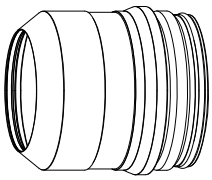
Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
in				H_2	Ar	N_2		in/min	volts	in	in	seconds	in	in
1/4	3	2060	52	4	12	24	52	80	163	0.200	0.200	0.3	0.100	0.10
5/16								73	164			0.4		0.10
3/8	1	2053	53	6	10		53	65	165			0.5		0.10
1/2								55	169			0.6		0.10
5/8	2	2061	50	8	12	20	52	40	173	0.240	0.240	0.8	0.120	0.11
3/4								30	174	0.300	0.300	1.5	0.150	0.11

Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8004	18	20	15	2.54 mm	6350 mm/min	145 V	1.7 mm
English	N_2	N_2	8004	18	20	15	0.100 in	250 in/min	145 V	0.06 in

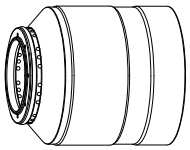
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9004	20	65	15	2.54 mm	3810 mm/min	101 V	2.0 mm
English	Ar	N_2	9004	20	65	15	0.100 in	150 in/min	101 V	0.08 in

Stainless steel – 170 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)

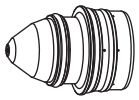


Shield retaining cap
420200

Shield
420327

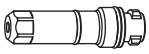


Nozzle retaining cap
420365

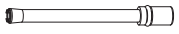


Nozzle
420324

Swirl ring
420314



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	99 / 210
Pierce flow	168 / 355
Cut flow	168 / 355

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
10	3	2057	54	90	54	1994	165	6.10	6.10	0.3	2.54	2.7
12	1					1834	165			0.4		2.6
15						1226	168			0.6		2.8
20	2					705	177	7.62	7.62	2.5	3.43	3.2
25						405	189		15.24	4.0	3.81	3.6
30	4					289	194	Edge start		0.5		3.6

Stainless steel – 170 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

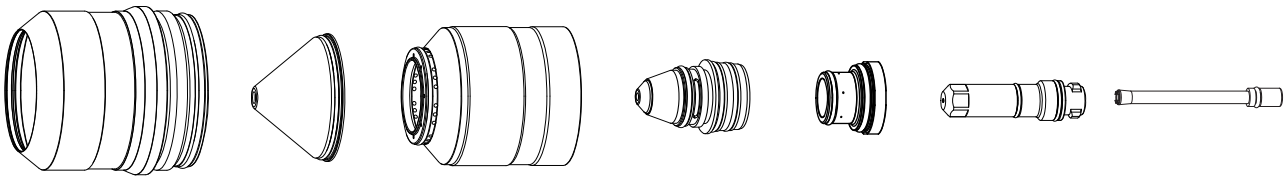
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/8	3	2057	54	90	54	80	165	0.240	0.240	0.3	0.100	0.11
1/2	1					70	165			0.4		0.10
5/8						40	169			0.7		0.11
3/4	2					30	175	0.300	0.300	2.5	0.120	0.12
1						15	190		0.600	4.0	0.150	0.14
1-1/4	4					10	196	Edge start		0.7		0.14

Marking

	Plasma gas	Shield gas	Process ID	Mark Current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8005	18	20	15	2.54 mm	6350 mm/min	121 V	2.0 mm
English	N_2	N_2	8005	18	20	15	0.100 in	250 in/min	121 V	0.08 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9005	18	55	15	2.54 mm	3810 mm/min	96 V	2.0 mm
English	Ar	N_2	9005	18	55	15	0.100 in	150 in/min	96 V	0.08 in

Stainless steel – 170 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420472	420365	420324	420314	420356	420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	19 / 40	0.4 / 6*
Pierce flow	47 / 100	0.5 / 8*
Cut flow	47 / 100	0.5 / 8*

* Gallons per hour (gph)

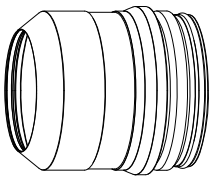
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
10	3	2058	30	90	30	1975	168	5.08	5.08	0.4	2.54	2.8
12	1					1735	172			0.5		2.8
15						1375	170					3.0
20	2					978	174	7.62	7.62	3.3		3.2
25						778	183		15.24	3.0	3.05	4.1
30	4					633	189	Edge start		0.7	3.81	4.4
32						578	191			0.8		4.5
38						434	195			1.0		4.7

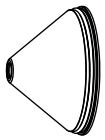
English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/8	3	2058	30	90	30	80	167	0.200	0.200	0.4	0.100	0.11
1/2	1					65	173			0.5		0.11
5/8						50	169					0.12
3/4	2					40	172	0.300	0.300	1.0		0.12
1						30	184		0.600	3.0	0.120	0.16
1-1/4	4					23	191	Edge start		0.8	0.150	0.18
1-1/2						17	195			1.0		0.19

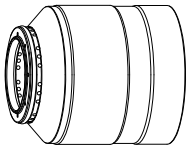
Stainless steel – 170 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix)



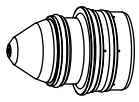
Shield retaining cap
420200



Shield
420327

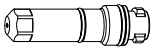


Nozzle retaining cap
420365

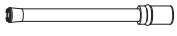


Nozzle
420324

Swirl ring
420323



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)			
	H_2	Ar	N_2
Pre flow	–	–	101 / 215
Pierce flow	8 / 17	12 / 25	162 / 345
Cut flow	8 / 17	12 / 25	162 / 345

Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
mm				H_2	Ar	N_2		mm/min	volts	mm	mm	seconds	mm	mm
10	3	2059	54	6	8	26	54	1975	169	5.08	5.08	0.4	2.54	2.9
12	1							1735	174			0.5		2.9
15								1375	169					2.9
20	2	2062			10	24		940	183	7.62	7.62	1.4		3.6
25		2063		8	6	26		540	192			0	3.05	4.0
30		2064			12	20		398	198				4.57	4.2
32								352	200					4.4
38								256	206					4.7

Stainless steel – 170 A – Mixed-fuel gas Plasma / N_2 Shield (OptiMix) (continued)

English

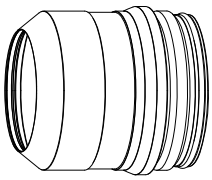
Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
in				H_2	Ar	N_2		in/min	volts	in	in	seconds	in	in
3/8	3	2059	54	6	8	26	54	80	168	0.200	0.200	0.4	0.100	0.12
1/2	1							65	176			0.5		0.11
5/8								50	167					0.12
3/4	2	2062			10	24		40	181	0.300	0.300	1.0		0.14
1	4	2063		8	6	26		20	193				0.120	0.16
1-1/4		2064			12	20		14	200					0.17
1-1/2								10	206					0.19

Marking

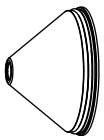
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8005	18	20	15	2.54 mm	6350 mm/min	121 V	0.08 mm
English	N_2	N_2	8005	18	20	15	0.098 in	250 in/min	121 V	2.0 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9005	18	55	15	2.54 mm	3810 mm/min	96 V	0.07 mm
English	Ar	N_2	9005	18	55	15	0.098 in	150 in/min	96 V	1.8 in

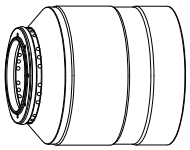
Stainless steel – 300 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)



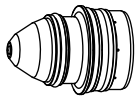
Shield retaining cap
420200



Shield
420362

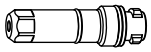


Nozzle retaining cap
420365

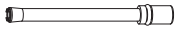


Nozzle
420359

Swirl ring
420323



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	106 / 225
Pierce flow	181 / 385
Cut flow	181 / 385

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
12	3	2054	54	90	54	2997	168	7.62	7.62	0.4	4.32	3.1
15						2666	168			0.5		3.1
20	1					1829	172			0.9	5.08	3.5
25						1429	177		12.70	1.5		3.4
30	2					1084	180		15.24	2.0		4.0
32						947	182			2.2		4.2
38	4	2100			58	515	194	Edge start		0.8		4.2
40						455	196					4.1
44						343	201			0.9	6.35	3.9
50	5					264	204			1.0		6.0

Stainless steel – 300 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

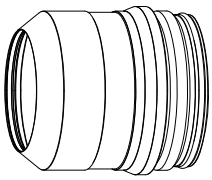
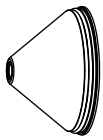
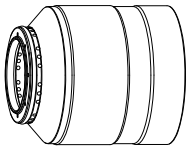
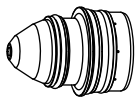
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/2	3	2054	54	90	54	118	168	0.300	0.300	0.4	0.170	0.12
5/8						100	168			0.5		0.12
3/4	1					75	171			0.8	0.200	0.14
1						55	177		0.500	1.5		0.14
1-1/4	2					38	181		0.600	2.2		0.17
1-1/2	4	2100			58	20	194	Edge start		0.5		0.17
1-3/4						13	201			0.8	0.250	0.15
2	5					10	205			1.0		0.25

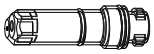
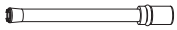
Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8006	18	15	25	2.54 mm	2540 mm/min	135 V	1.5 mm
English	N_2	N_2	8006	18	15	25	0.100 in	100 in/min	135 V	0.06 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9006	22	55	15	2.54 mm	2540 mm/min	92 V	2.8 mm
English	Ar	N_2	9006	22	55	15	0.100 in	100 in/min	92 V	0.11 in

Stainless steel – 300 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)

Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420475	420365	420359	420323	420356	420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	31 / 65	0.42 / 6.5*
Pierce flow	75 / 160	0.5 / 8*
Cut flow	75 / 160	0.5 / 8*

* Gallons per hour (gph)

Metric

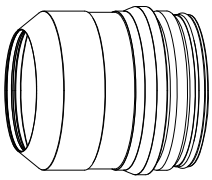
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
12	3	2055	22	90	22	2159	174	7.62	7.62	0.5	3.81	3.5
15						1975	175			0.9		3.5
20	1					1702	180			1.0	5.08	4.0
25						1302	183			1.2		4.2
30	2					994	189		15.24	1.9		4.6
32						879	191			2.0		4.8
38						639	201		17.78	3.5	6.35	5.4
40	4					612	202	Edge start		0.5		5.4
44						564	203			0.6		5.4
50						403	210			1.0		5.7

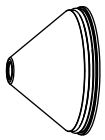
Stainless steel – 300 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix) (continued)

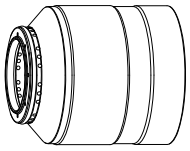
English

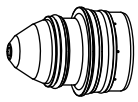
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/2	3	2055	22	90	22	85	174	0.300	0.300	0.5	0.150	0.14
5/8						75	176			1.0		0.14
3/4	1					70	180				0.200	0.15
1						50	183			1.2		0.17
1-1/4	2					35	191		0.600	2.0		0.19
1-1/2						25	201		0.700	3.5	0.250	0.21
1-3/4	4					22	203	Edge start		0.5		0.21
2						15	211			1.0		0.23

Stainless steel – 300 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix)

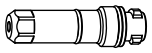

Shield retaining cap
420200

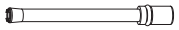

Shield
420362


Nozzle retaining cap
420365


Nozzle
420359


Swirl ring
420358


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)			
	H_2	Ar	N_2
Pre flow	–	–	118 / 250
Pierce flow	24 / 51	48 / 102	150 / 320
Cut flow	24 / 51	48 / 102	150 / 320

Metric

Material thickness	SYSTEM SETTINGS						CNC SETTINGS						
		Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
			Plasma gas			Shield gas							
mm			H_2	Ar	N_2		mm/min	volts	mm	mm	seconds	mm	mm
12		54	18	24	18	54	2032	171	8.89	8.89	0.4	5.08	4.3
15							1848	172			0.6		4.3
20			24	21	15		1340	186			0.8		4.6
25							1040	187			1.3		4.7
30							924	188		15.24	2.5		5.0
38			18	24	18		639	190		17.78	3.5		4.8
40							597	185	Edge start		0.8		4.6
50			12	48	0		441	180			0.9	6.35	5.4
60							289	184			0.9		4.6
70							202	193			1.3		4.7

Stainless steel – 300 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix) (continued)

English

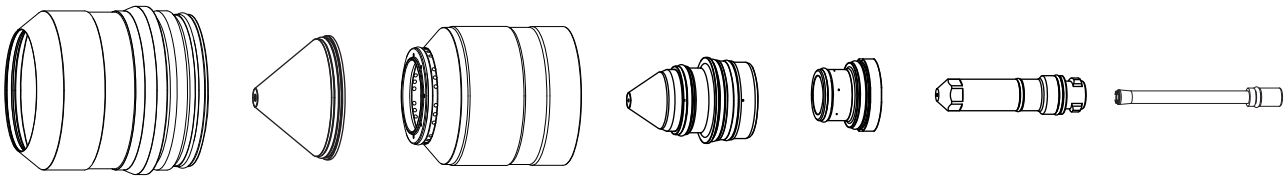
Material thickness	SYSTEM SETTINGS						CNC SETTINGS						
		Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
			Plasma gas			Shield gas							
			$_2$	Ar	N_2		in/min	volts	in	in	seconds	in	in
in													
1/2		54	18	24	18	54	80	171	0.350	0.350	0.4	0.200	0.17
5/8							70	173			0.7		0.17
3/4			24	21	15		55	186			0.8		0.18
1							40	187			1.2		0.19
1-1/4							35	189		0.600	2.8		0.20
1 -1/2			18	24	18		25	190		0.700	3.5		0.19
1-3/4			12	48	0		20	172	Edge start		0.8		0.17
2							17	181				0.250	0.22
2-1/4							13	183			0.9		0.19
2-1/2							10	185			1.0		0.17
2-3/4							8	193			1.3		0.18
3							6	200			1.5		0.20

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc Volt	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8006	18	25	15	2.54 mm	2540 mm/min	135 V	1.5 mm
English	N_2	N_2	8006	18	25	15	0.100 in	100 in/min	135 V	0.06 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9006	22	55	15	2.54 mm	2540 mm/min	92 V	2.8 mm
English	Ar	N_2	9006	22	55	15	0.100 in	100 in/min	92 V	0.11 in

Cut charts for non-ferrous (aluminum) processes – above water

Aluminum – 40 A – Air Plasma / Air Shield – above water (Core, VWI, OptiMix)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420291	420365	420288	420314	420294	420368

Flow rate (lpm/scfh)		
	N_2	Air
Pre flow	17 / 35	32 / 67
Pierce flow	–	54 / 115
Cut flow	–	66 / 141

Metric

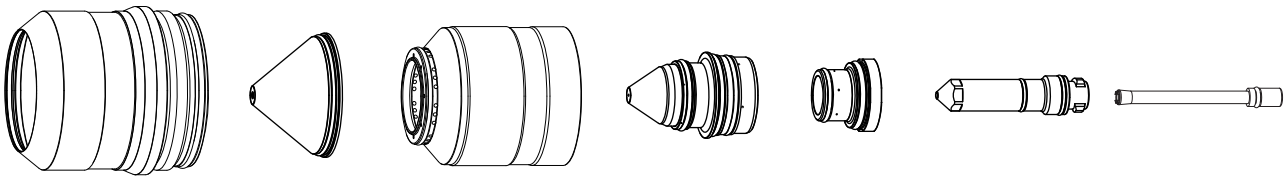
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
1.5	3	2019	30	90	85	4799	137	5.08	5.08	0.2	3.05	1.5
2						3964	135					1.4
2.5	1	2018			68	3230	133			0.3		1.3
3						2596	132				2.70	1.3
4	2	2017			64	1632	131				2.54	1.2
5		2016			55	1070	131					1.3
6						911	135			0.6		1.4

Aluminum – 40 A – Air Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.036 (20GA)	3	2019	30	90	85	240	137	0.200	0.200	0.2	0.120	0.07
0.051 (16GA)						210	137					0.06
0.064 (14GA)						180	137					0.07
0.081 (12GA)						160	135					0.05
0.102 (10GA)	1	2018			68	120	132			0.3		0.05
1/8		2017			64	85	132				0.100	0.05
3/16	2	2016			55	60	130					0.05
1/4						32	137			0.6		0.06

Aluminum – 40 A – N_2 Plasma / N_2 Shield – above water (Core)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420291	420365	420288	420314	420303	420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	49 / 103
Pierce flow	57 / 120
Cut flow	71 / 152

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Plasma gas		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
1.5	3	2015	30	75	85	4781	131	5.08	5.08	0.2	3.05	1.3
2						3494	132					1.3
2.5	1	2014		90	68	2740	132			0.3		1.3
3						2246	131				2.70	1.3
4	2	2013			64	1641	130				2.54	1.2
5		2012			55	1287	131					1.2
6						1055	137			0.6		1.3

Aluminum – 40 A – N_2 Plasma / N_2 Shield – above water (Core) (continued)

English

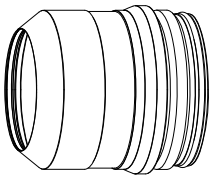
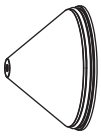
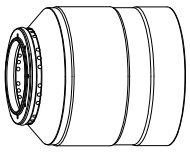
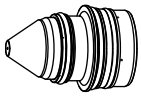
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.036 (20GA)	3	2015	30	90	85	240	137	0.200	0.200	0.2	0.120	0.07
0.051 (16GA)						210	137					0.06
0.06 (14GA)						180	137					0.07
0.081 (12GA)						160	135					0.05
0.102 (10GA)	1	2014			68	120	132			0.3		0.05
1/8		2013			64	85	132				0.100	0.05
3/16	2	2012			55	60	130					0.05
1/4						32	137			0.6		0.06

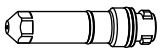
Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/min	120 V	2.1 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.08 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9011	12	90	10	2.54 mm	2540 mm/min	76 V	0.8 mm
English	Ar	N_2	9011	12	90	10	0.100 in	100 in/min	76 V	0.03 in

Aluminum – 60 A – Air Plasma / Air Shield – above water (Core, VWI, OptiMix)




Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420309	420365	420297	420323	420294	420368

Flow rate (lpm/scfh)		
	N_2	Air
Pre flow	24 / 51	24 / 50
Pierce flow	–	91 / 193
Cut flow	–	56 / 120

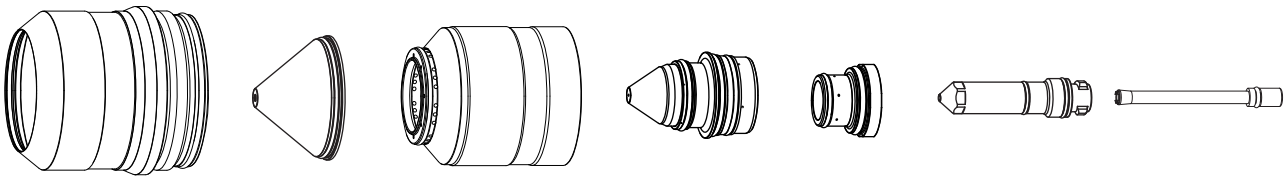
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	1	2027	30	80	45	2688	130	5.08	5.08	0.3	2.54	1.7
4						2229	130					1.6
5						1928	131					1.6
6	2					1713	131					1.5

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.102 (10GA)	3	2027	30	80	45	120	130	0.200	0.200	0.3	0.100	0.07
1/8	1					95	130					0.06
3/16						80	129					0.06
1/4	2					65	132					0.06

Aluminum – 60 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420309	420365	420297	420323	420303	420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	48 / 102
Pierce flow	63 / 134
Cut flow	72 / 154

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	1	2026	30	82	65	2776	129	5.08	5.08	0.3	3.20	1.6
4						2245	130				2.54	1.5
5		2025			55	1886	131					1.5
6	2	2024			45	1697	132			0.6		1.4

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.102 (10GA)	30	2026	30	82	65	120	131	0.200	0.200	0.3	0.120	0.07
0.125	1				65	100	128					0.06
3/16		2025			55	80	131				0.100	0.06
1/4	2	2024			45	60	132			0.6		0.06

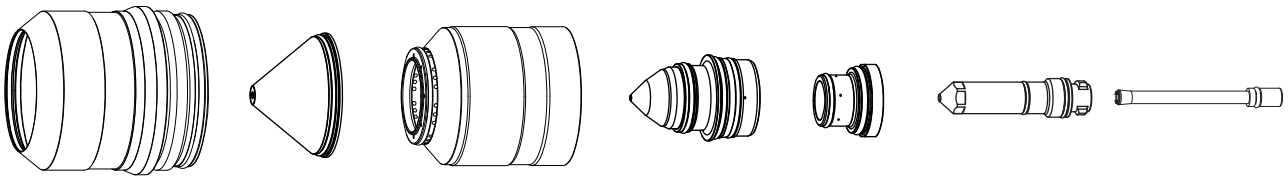
Aluminum – 60 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/min	120 V	1.8 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.07 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9012	14	90	20	2.54 mm	2540 mm/min	77 V	1.3 mm
English	Ar	N_2	9012	14	90	20	0.100 in	100 in/min	77 V	0.05 in

Aluminum – 60 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420300	420365	420296	420323	420303	420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	27 / 57	0.2 / 3*
Pierce flow	34 / 72	0.2 / 3*
Cut flow	20 / 42	0.4 / 7*

*Gallons per hour (gph)

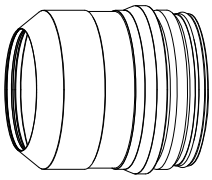
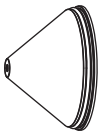
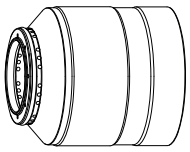
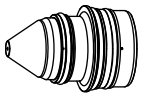
Metric

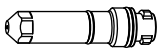
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR Process ID	Shield pierce setting	Cutlow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
mm				Plasma gas	Shield gas	mm/min	volts	mm	mm	seconds	mm	mm
3	1	2028	10	80	30	2754	122	5.08	5.08	0.3	3.05	1.4
4						2402	124				2.54	1.4
5						2050	126					1.4
6	2					1698	128			0.6	3.05	1.5

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR Process ID	Shield pierce setting	Cutlow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
in				Plasma gas	Shield gas	in/min	volts	in	in	seconds	in	in
0.102 (10GA)	3	2028	10	80	30	120	126	0.200	0.200	0.3	0.120	0.05
1/8	1					100	122				0.100	0.06
3/16						80	122					0.06
1/4	2					65	124			0.6		0.05
3/8						18	138			0.8	0.120	0.06

Aluminum – 80 A – Air Plasma / Air Shield – above water (Core, VWI, OptiMix)




Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420309	420365	420306	420323	420294	420368

Flow rate (lpm/scfh)		
	N_2	Air
Pre flow	51 / 107	–
Pierce flow	23 / 48	43 / 91
Cut flow	–	69 / 147

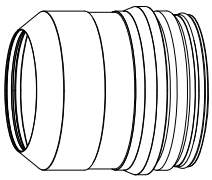
Metric

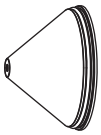
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2008	30	80	55	3874	128	5.08	5.08	0.3	2.03	1.7
4						3143	129					1.6
5		2009			40	2520	129					1.5
6	1					2005	127			0.5		1.5
8						1297	128			0.6		1.6
10	2					1019	131					1.7

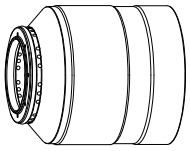
English

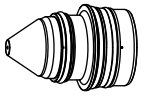
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/16	3	2008	30	80	55	100	130	0.200	0.200	0.3	0.080	0.06
1/4	1	2009			40	70	126			0.5		0.06
5/16						55	128			0.6		0.06
3/8						40	130					0.07

Aluminum – 80 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)

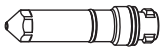

Shield retaining cap
420200

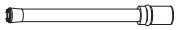

Shield
420309


Nozzle retaining cap
420365


Nozzle
420306


Swirl ring
420323


Electrode
420303


Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	51 / 108
Pierce flow	67 / 143
Cut flow	68 / 114

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2006	30	80	45	3820	120	5.08	5.08	0.3	2.50	1.7
4						3220	119					1.6
5		2007			40	2692	118				2.03	1.5
6	1					2237	120			0.5		1.6
8						1543	122			0.6		1.7
10	2					1138	125					1.7

Aluminum – 80 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

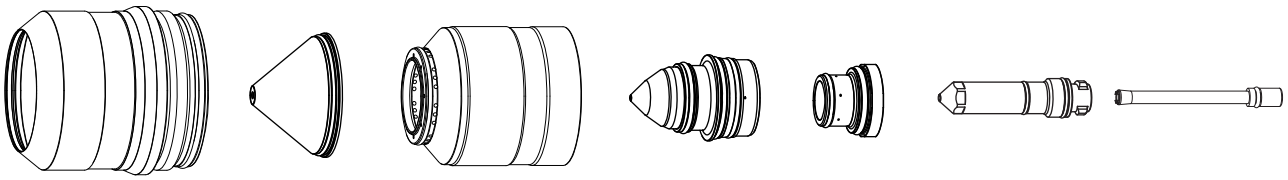
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/8	3	2006	30	80	45	140	120	0.200	0.200	0.3	0.100	0.07
3/16						110	118				0.080	0.06
1/4	1	2007			40	84	120			0.5		0.06
5/16						64	122			0.6		0.07
3/8						48	124					0.07

Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8002	15	25	5	2.54 mm	6350 mm/min	120 V	1.6 mm
English	N_2	N_2	8002	15	25	5	0.100 in	250 in/min	120 V	0.06 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9013	16	90	20	2.54 mm	2540 mm/min	78 V	1.5 mm
English	Ar	N_2	9013	16	90	20	0.100 in	100 in/min	78 V	0.58 in

Aluminum – 80 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420300	420365	420290	420323	420303	420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	30 / 64	0.2 / 3*
Pierce flow	37 / 79	0.2 / 3*
Cut flow	24 / 51	0.4 / 6*

*Gallons per hour (gph)

Metric

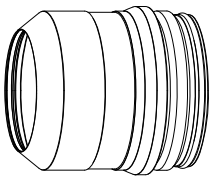
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2010	10	80	30	3820	121	5.08	5.08	0.3	2.03	1.7
4						3216	122					1.7
5						2677	124					1.6
6	1					2203	126			0.5		1.6
7						1794	128					1.6
8						1450	129			0.6		1.7
10	2					956	133					1.8

Aluminum – 80 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix) (continued)

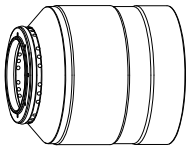
English

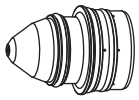
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/8	3	2010	10	80	30	140	120	0.200	0.200	0.3	0.080	0.07
3/16				86		110	122					0.06
1/4	1					80	126			0.5		0.06
5/16						60	129			0.6		0.07
3/8						40	132					0.07
7/16	2					31	134			0.8		0.07
1/2		2011				28	135					0.06

Aluminum – 130 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)

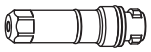

Shield retaining cap
420200

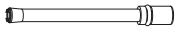

Shield
420318


Nozzle retaining cap
420365


Nozzle
420315


Swirl ring
420314


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	92 / 195
Pierce flow	150 / 320
Cut flow	150 / 320

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2051	52	90	52	2413	154	6.07	6.07	0.4	2.54	2.5
7						2358	168					2.5
8						2078	169			0.5		2.5
10	1					1594	171					2.5
12						1354	174			0.6		2.5
15	2					1178	178			0.7	3.04	2.4
20						635	182			1.3		2.7

Aluminum – 130 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

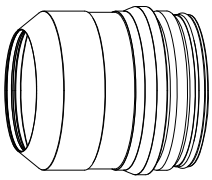
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2051	52	90	52	100	168	0.240	0.240	0.5	0.100	0.10
5/16						83	169					0.10
3/8	1					65	170					0.10
1/2						50	175			0.6		0.10
5/8	2					45	179			0.7	0.120	0.09
3/4						30	181			1.2		0.10

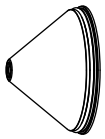
Marking

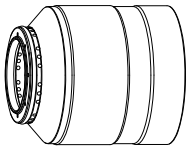
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8004	18	15	20	2.54 mm	6350 mm/min	145 V	1.3 mm
English	N_2	N_2	8004	18	15	20	0.100 in	250 in/min	145 V	0.05 in

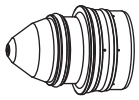
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9014	24	65	15	2.54 mm	2540 mm/min	88 V	2.0 mm
English	Ar	N_2	9014	24	65	15	0.100 in	100 in/min	88 V	0.08 in

Aluminum – 130 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)

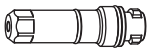

Shield retaining cap
420200

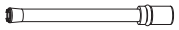

Shield
420469


Nozzle retaining cap
420365


Nozzle
420315


Swirl ring
420314


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	38	0.42 / 6.5*
Pierce flow	97	0.5 / 8*
Cut flow	97	0.5 / 8*

* Gallons per hour (gph)

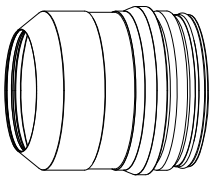
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	voltage	mm	mm	seconds	mm	mm
6	3	2052	25	90	25	2413	154	6.10	6.10	0.4	2.54	2.5
8						2083	156			0.5		2.5
10	1					1702	158			0.6		2.5
12						1382	160			0.8		2.5
15	2					1178	164			1.0	3.05	2.8
20						762	170			1.3		3.2

English

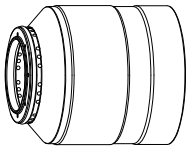
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	voltage	in	in	seconds	in	in
1/4	3	2052	25	90	25	95	154	0.240	0.240	0.4	0.100	0.10
5/16						83	156			0.5		0.10
3/8	1					70	157			0.6		0.10
1/2						50	161			0.8		0.10
5/8	2					45	165			1.0	0.120	0.11
3/4						35	168			1.2		0.12

Aluminum – 130 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix)

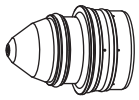


Shield retaining cap
420200

Shield
420318

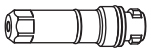


Nozzle retaining cap
420365

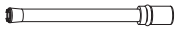


Nozzle
420315

Swirl ring
420323



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)			
	H_2	Ar	N_2
Pre flow	–	–	103 / 220
Pierce flow	8 / 17	12 / 25	150 / 320
Cut flow	8 / 17	12 / 25	150 / 320

Metric

Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
mm				H_2	Ar	N_2		mm/min	volts	mm	mm	seconds	mm	mm
6	3	2060	52	4	12	24	52	2413	163	5.08	5.08	0.3	2.54	2.4
7								2205	164					2.4
8								1885	165			0.4		2.5
10	1	2053	53	6	10			1340	167			0.5		2.6
12							53	1100	169			0.6		2.5
15	2	2061	50	8	12	20	52	1016	172	6.10	6.10	0.7	3.05	2.6
20								813	175			1.5		2.9

Aluminum – 130 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix) (continued)

English

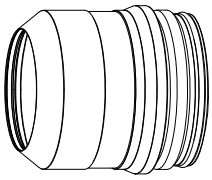
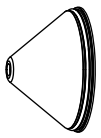
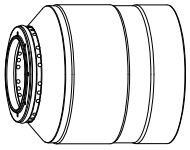
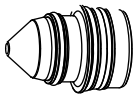
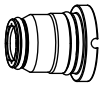
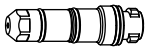
Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
in				H_2	Ar	N_2		in/min	volts	in	in	seconds	in	in
1/4	3	2060	52	4	12	24	52	95	163	0.200	0.200	0.3	0.100	0.09
5/16								75	165			0.4		0.10
3/8	1	2053	53	6	10		53	55	166			0.5		0.10
1/2								40	170			0.6		0.10
5/8	2	2061	50	8	12	20	52	40	173	0.240	0.240	0.8	0.120	0.10
3/4								35	174			1.5		0.10

Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8001	15	10	10	2.54 mm	6350 mm/min	118 V	1.3 mm
English	N_2	N_2	8001	15	10	10	0.100 in	250 in/min	118 V	0.05 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9014	24	65	15	2.54 mm	2540 mm/min	88 V	2.0 mm
English	Ar	N_2	9014	24	65	15	0.100 in	100 in/min	88 V	0.08 in

Aluminum – 170 A – Air Plasma / Air Shield – above water (Core, VWI, OptiMix)


Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420513	420365	420524	420260	420258	420368

Flow rate (lpm/scfh)		
	N_2	Air
Pre flow	25 / 52	78 / 166
Pierce flow	–	99 / 210
Cut flow	–	99 / 210

Metric

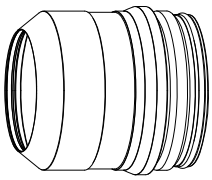
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2101	40	78	77	4826	136	5.59	5.59	0.3	2.79	3.0
7						4566	136					2.9
8						4166	136			0.4		2.9
10						3385	136					2.8
12	1					2665	138	5.58	5.88	0.6		2.7
15						1769	145	7.62	7.62	0.7	3.81	2.5
20	2					1086	151			1.0		2.9
25						786	155			1.2		3.0
30	4					486	162	Edge start		0.3	4.57	3.1
32						376	165					3.1
38						256	172					3.4

Aluminum – 170 A – Air Plasma / Air Shield – above water (Core, VWI, OptiMix) (continued)

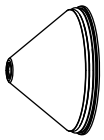
English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2101	40	78	77	190	136	0.220	0.220	0.3	0.110	0.12
5/16						165	136			0.4		0.11
3/8						140	136					0.11
1/2	1					95	139			0.6		0.10
5/8						60	147	0.300	0.300	0.8	0.150	0.10
3/4	2					45	150			1.0		0.11
1						30	155			1.2		0.12
1-1/4	4					15	165	Edge start		0.3	0.180	0.12
1-1/2						10	172					0.14

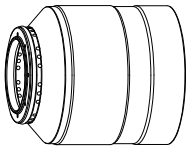
Aluminum – 170 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)



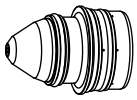
Shield retaining cap
420200



Shield
420327

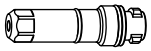


Nozzle retaining cap
420365

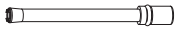


Nozzle
420324

Swirl ring
420314



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	99 / 210
Pierce flow	168 / 355
Cut flow	168 / 355

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2057	54	90	54	5969	154	6.10	6.10	0.30	2.54	2.4
7						5735	156			0.32		2.4
8	1					5375	157			0.35		2.3
10						4560	159			0.45		2.2
15	2					2220	166			0.92	3.05	2.3
20						1156	178			1.58	3.81	2.6
25	4					556	187	Edge start		1.97		2.8

Aluminum – 170 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

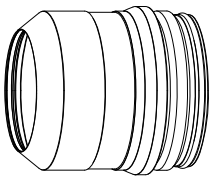
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2057	54	90	54	235	154	0.240	0.240	0.3	0.100	0.10
3/8						190	158			0.4		0.10
1/2	1					120	163			0.7		0.09
5/8						75	167			1.0	0.120	0.09
3/4	2					50	176			1.5	0.150	0.10
1	4					20	188	Edge start		2.0		0.11

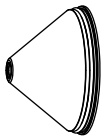
Marking

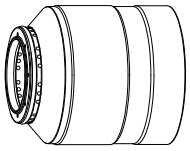
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8005	18	20	15	2.54 mm	6350 mm/min	121 V	1.8 mm
English	N_2	N_2	8005	18	20	15	0.100 in	250 in/min	121 V	0.07 in

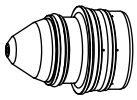
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9015	24	55	15	2.54 mm	3810 mm/min	97 V	1.7 mm
English	Ar	N_2	9015	24	55	15	0.100 in	150 in/min	97 V	0.07 in

Aluminum – 170 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)

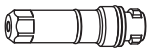

Shield retaining cap
420200

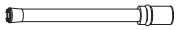

Shield
420472


Nozzle retaining cap
420365


Nozzle
420324


Swirl ring
420314


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	19 / 40	0.4 / 6*
Pierce flow	47 / 100	0.5 / 8*
Cut flow	47 / 100	0.5 / 8*

* Gallons per hour (gph)

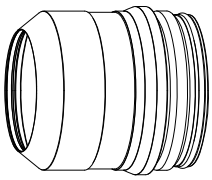
Metric

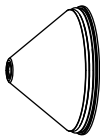
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
10	3	2058	30	90	30	1994	168	7.62	7.62	0.4	2.54	2.7
12	1					1834	170			0.6		2.8
15						1502	174			0.9		2.8
20	2					978	180			2.3		3.0
25						778	185			4.0		3.3
30	4					642	189	Edge start		0.3		3.4
32						590	190			0.4		3.4
38	5					434	195			0.5		3.6

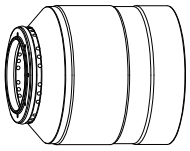
English

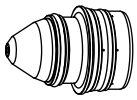
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/8	3	2058	30	90	30	80	168	0.300	0.300	0.4	0.100	0.11
1/2	1					70	171			0.6		0.11
5/8						55	175			1.0		0.11
3/4	2					40	179			2.0		0.12
1						30	185			4.0		0.13
1-1/4	4					23	190	Edge start		0.3		0.14
1-1/2	5					17	195			0.5		0.14

Aluminum – 170 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix)

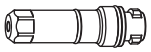

Shield retaining cap
420200

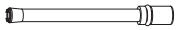

Shield
420327


Nozzle retaining cap
420365


Nozzle
420324


Swirl ring
420323


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)			
	H_2	Ar	N_2
Pre flow	–	–	101 / 215
Pierce flow	8 / 17	12 / 25	162 / 345
Cut flow	8 / 17	12 / 25	162 / 345

Metric

Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
mm				H_2	Ar	N_2		mm/min	volts	mm	mm	seconds	mm	mm
10	3	2059	54	6	8	26	54	3334	172	5.08	5.08	0.4	2.54	2.5
12	1							2934	179			0.6		2.5
15								2150	179			0.7		2.5
20	2	2062			10	24		1213	192	7.62	7.62	1.1		2.9
25		2063		8	6	26		913	196		15.24	1.9	3.05	3.2
30	4	2064			12	20		650	198	Edge start		0.5	4.57	3.2
32								552	199					3.3
38								384	202					3.3

Aluminum – 170 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix) (continued)

English

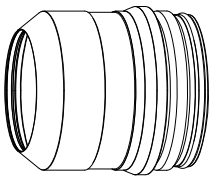
Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce pressure	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
in				H_2	Ar	N_2		in/min	volts	in	in	seconds	in	in
3/8	3	2059	54	6	8	26	54	135	171	0.200	0.200	0.4	0.100	0.10
1/2	1							110	181			0.6		0.10
5/8								75	178			0.8		0.10
3/4	2	2062			10	24		50	191	0.300	0.300	1.0		0.11
1		2063		8	6	20		35	196		0.600	2.0	0.120	0.13
1-1/4	4	2064			12			22	199	Edge start		0.5	0.180	0.13
1-1/2								15	202					0.13

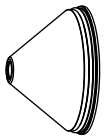
Marking

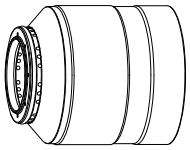
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8005	18	20	15	2.54 mm	6350 mm/min	121 V	1.8 mm
English	N_2	N_2	8005	18	20	15	0.100 in	250 in/min	121 V	0.07 in

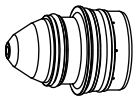
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9015	24	55	15	2.54 mm	3810 mm/min	97 V	1.7 mm
English	Ar	N_2	9015	24	55	15	0.100 in	150 in/min	97 V	0.07 in

Aluminum – 300 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix)

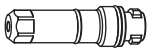

Shield retaining cap
420200

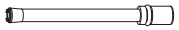

Shield
420362


Nozzle retaining cap
420365


Nozzle
420359


Swirl ring
420323


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	106 / 225
Pierce flow	181 / 385
Cut flow	181 / 385

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
10	3	2054	54	90	54	5182	168	7.62	7.62	0.4	3.81	3.4
12						4542	170					3.4
15						3582	172			0.5		3.4
20	1					2064	181			0.9	5.08	3.7
25						1564	185		12.70	1.5		3.8
30	4					1248	191	Edge start		0.5	6.35	4.2
38		2100			58	643	201			0.6		4.8
40						559	205					4.8
44						399	212			0.8		4.8
50	5					270	218			1.0		5.0

Aluminum – 300 A – N_2 Plasma / N_2 Shield – above water (Core, VWI, OptiMix) (continued)

English

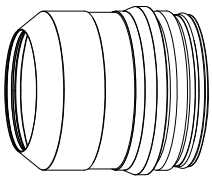
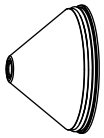
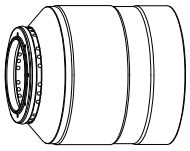
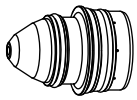
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/8	3	2054	54	90	54	210	168	0.300	0.300	0.4	0.150	0.14
1/2						170	171					0.13
5/8						130	172			0.5		0.13
3/4	1					85	180			0.8	0.250	0.15
1						60	185		0.500	1.5		0.15
1-1/4	4					45	193	Edge start		0.5		0.17
1-1/2		2100			58	25	201					0.19
1-3/4						15	213			0.8		0.190
2	5					10	219			1.0		0.192

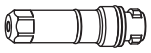
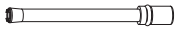
Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8005	18	20	15	2.54 mm	6350 mm/min	121 V	0.7 mm
English	N_2	N_2	8005	18	20	15	0.100 in	250 in/min	121 V	0.03 in

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9015	24	55	15	2.54 mm	3810 mm/min	97 V	1.4 mm
English	Ar	N_2	9015	24	55	15	0.100 in	150 in/min	97 V	0.06 in

Aluminum – 300 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix)

Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420475	420365	420359	420323	420356	420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	31 / 65	0.42 / 6.5*
Pierce flow	75 / 160	0.5 / 8*
Cut flow	75 / 160	0.5 / 8*

* Gallons per hour (gph)

Metric

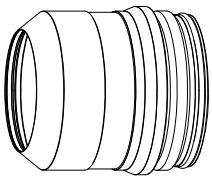
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
12	3	2055	22	90	22	2286	179	7.62	7.62	0.5	3.81	3.8
15						2010	180			0.7		4.0
20	1					1702	184		8.89	1.2	5.08	4.0
25						1302	188		15.24	1.9		4.2
30	2					1086	192		17.78	3.1		4.4
32						1006	194			3.6		4.5
38	4					766	200	Edge start		0.4	6.35	4.7
40						724	200					4.8
44						644	200					5.0
50						524	200			1.0		5.0

Aluminum – 300 A – N_2 Plasma / H_2O Shield – above water (VWI, OptiMix) (continued)

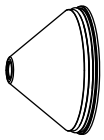
English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/2	3	2055	22	90	22	90	179	0.300	0.300	0.5	0.150	0.15
5/8						75	180			0.8		0.15
3/4	1					70	183			1.0	0.200	0.16
1						50	188		0.600	2.0		0.16
1-1/2	4					30	200	Edge start		0.4	0.250	0.19
2						20	200			1.0		0.21

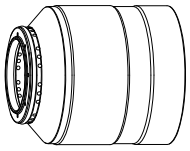
Aluminum – 300 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix)



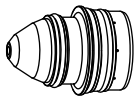
Shield retaining cap
420200



Shield
420362

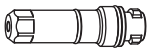


Nozzle retaining cap
420365

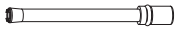


Nozzle
420359

Swirl ring
420358



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)			
	H_2	Ar	N_2
Pre flow	–	–	118 / 250
Pierce flow	24 / 51	48 / 102	150 / 320
Cut flow	24 / 51	48 / 102	150 / 320

Metric

Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
mm				H_2	Ar	N_2		mm/min	volts	mm	mm	seconds	mm	mm
12	3	2065	54	18	24	18	54	3810	171	8.89	8.89	0.4	5.08	4.0
15								3442	175			0.6		4.0
20	1	2056		24	21	15		2356	182			0.9		4.2
25								2056	188			1.2		4.2
30	2							1480	192		12.70	1.9		4.6
32								1245	194			2.3		4.7
38		2065		18	24	18		645	202		15.24	4.0	6.35	5.4
40	4							582	197	Edge start		0.5		5.5
44		2066		12	48	0		470	185					5.8
50								391	187					6.0

Aluminum – 300 A – Mixed-fuel gas Plasma / N_2 Shield – above water (OptiMix) (continued)

English

Material thickness	Cut category	SYSTEM SETTINGS						CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow				Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas			Shield gas							
in				H_2	Ar	N_2		in/min	volts	in	in	seconds	in	in
1/2	3	2065	54	18	24	18	54	150	171	0.350	0.350	0.4	0.200	0.16
5/8								130	176			0.6		0.16
3/4	1	2056		24	21	15		95	181			0.8		0.17
1								80	188			1.2		0.17
1-1/4	2							50	194		0.500	2.2		0.19
1-1/2		2065		18	24	18		25	202		0.600	4.0		0.21
1-3/4	4	2066		12	48	0		18	184	Edge start		0.5	0.250	0.23
2								15	187					0.24

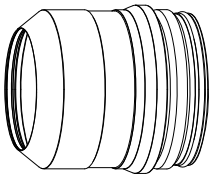
Marking

	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	N_2	N_2	8006	18	25	15	2.54 mm	2540 mm/min	135 V	0.7 mm
English	N_2	N_2	8006	18	25	15	0.100 in	100 in/min	135 V	0.03 in

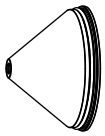
	Plasma gas	Shield gas	Process ID	Mark current	Cutflow		Marking height	Marking speed	Arc voltage	Mark widths
					Plasma gas	Shield gas				
Metric	Ar	N_2	9017	28	35	15	2.54 mm	2540 mm/min	77 V	1.4 mm
English	Ar	N_2	9017	28	35	15	0.100 in	100 in/min	77 V	0.06 in

Cut charts for ferrous (mild steel) processes – underwater

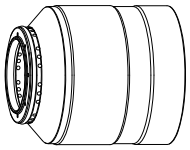
Mild steel – 80 A – O_2 Plasma / Air Shield (Core, VWI, OptiMix)



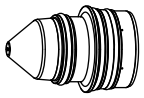
Shield retaining cap
420200



Shield
420246

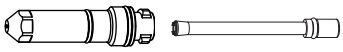


Nozzle retaining cap
420365



Nozzle
420243

Swirl ring
420242



Electrode
420240

Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	38/80	–	49/105
Pierce flow	–	38/80	49/105
Cut flow	–	38/80	46/98

Metric

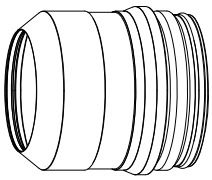
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm							volts	mm	mm	seconds	mm	mm
3	3	1001	18	82	72	5023	118	4.06	4.06	0.2	2.03	1.8
4		1002			68	3878	118					1.8
5						3367	120					1.8
6	1	1003			56	2529	124			0.3		1.9
7						2121	123					1.9
8		1004			52	1939	121			0.4		2.0
9						1667	122			0.5		2.0
10	2	1005			46	1494	123	4.37	4.37			2.0
12						1338	125	5.08	5.08	0.7		2.2

Mild steel – 80 A – O_2 Plasma / Air Shield – underwater (Core, VWI, OptiMix) (continued)

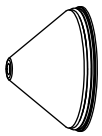
English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in							volts	in	in	seconds	in	in
0.105 (12GA)	3	1001	18	82	72	203	118	0.160	0.160	0.1	0.080	0.07
0.135 (10GA)						162	118			0.2		0.07
3/16		1002			68	140	119					0.07
1/4	1	1003			56	88	125			0.3		0.08
5/16		1004			52	77	121			0.4		0.08
3/8		1005			46	60	123			0.5		0.08
1/2	2					50	126	0.200	0.200	0.7		0.09

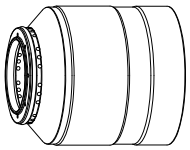
Mild steel – 130 A – O_2 Plasma / Air Shield – underwater (Core, VWI, OptiMix)



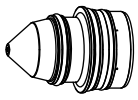
Shield retaining cap
420200



Shield
420255

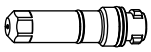


Nozzle retaining cap
420365



Nozzle
420252

Swirl ring
420242



Electrode
420249

Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	33 / 69	–	85 / 180
Pierce flow	–	31 / 65	82 / 173
Cut flow	–	31 / 65	92 / 195

Metric

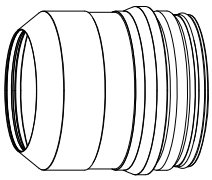
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	1101	37	92	45	5842	132	5.08	5.08	0.1	2.54	2.2
4						5002	133	5.30	5.30		2.65	2.3
5						4158	134	5.59	5.59	0.2	2.79	2.3
6	1	1102			27	3336	137			0.3		2.4
7		1103			82	3017	136	5.80	5.80			2.4
8						2943	134	6.10	6.10			2.4
10		1104			77	2144	138	6.25	6.25	0.4		2.6
12		1105			72	1760	141	6.60	6.60	0.5		2.6
15	2					1499	145	7.62	7.62	0.7	3.81	2.8
20						973	152			1.1		3.1
25						502	158			1.7	4.03	3.7

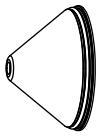
Mild steel – 130 A – O_2 Plasma / Air Shield – underwater (Core, VWI, OptiMix) (continued)

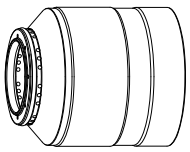
English

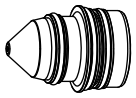
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	1101	37	92	45	216	132	0.200	0.200	0.1	0.110	0.09
3/16						171	134	0.220	0.220	0.2		0.09
1/4	1	1102			27	120	138			00.3		0.09
5/16		1103			82	117	134	0.240	0.240			0.09
3/8		1104			77	88	138					0.10
1/2		1105			72	64	142	0.260	0.260	0.5		0.11
5/8	2					54	147	0.300	0.300	0.7	0.150	0.11
3/4						41	151			1.0		0.12
1						18	159			1.8	0.160	0.15

Mild steel – 170 A O_2 Plasma / Air Shield – underwater (Core, VWI, OptiMix)

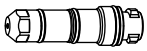

Shield retaining cap
420200

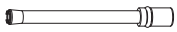

Shield
420513


Nozzle retaining cap
420365


Nozzle
420261


Swirl ring
420260


Electrode
420258


Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	23 / 49	–	78 / 165
Pierce flow	–	33 / 69	96 / 202
Cut flow	–	33 / 69	50 / 105

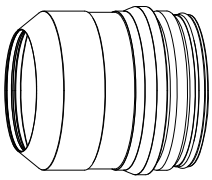
Metric

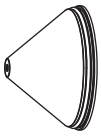
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
5	3	1151	45	78	79	5258	124	6.60	6.60	0.3	2.79	2.6
6						4623	126					2.6
7						4335	127					2.6
8						3898	128					2.6
10	1	1152				3146	129					2.7
15		1153			77	2070	136	8.13	8.13	0.6	4.06	2.9
20	2					1432	139			0.8		3.2
25						1068	145	10.16	10.16	1.0	4.32	3.5

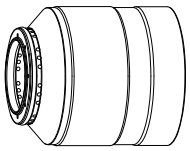
English

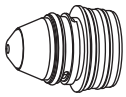
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/16	3	1151	45	78	79	207	124	0.260	0.260	0.3	0.110	0.10
1/4						182	126					0.10
3/8	1	1152				127	129					0.11
1/2		1153			77	105	132			0.5		0.11
5/8						73	138	0.320	0.320	0.6	0.160	0.12
3/4	2					59	138			0.8		0.13
1						41	145	0.400	0.400	1.0	0.170	0.14

Mild steel – 220 A O_2 Plasma / Air Shield – underwater (Core, VWI, OptiMix)

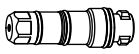

Shield retaining cap
420200


Shield
420273


Nozzle retaining cap
420365


Nozzle
420270


Swirl ring
420406


Electrode
420276


Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	22/ 46	–	71 / 150
Pierce flow	–	49 / 103	71 / 150
Cut flow	–	49 / 103	64 / 136

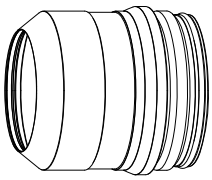
Metric

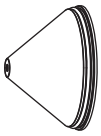
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas5460							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	1252	30	90	45	5460	160	6.60	6.60	0.3	3.05	2.8
7						5040	160					2.9
8						4400	159					3.0
10		1253			30	3330	158					3.1
15	1	1251			26	2610	157	6.35	6.35	0.4	2.80	3.1
20						1830	162			0.8	3.05	3.4
25	2					1430	164			1.1		3.5
30						1030	171			1.7		3.9

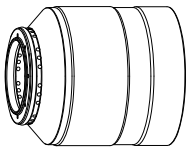
English

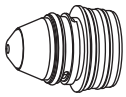
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	1252	30	90	45	215	160	0.260	0.260	0.3	0.120	0.11
3/8		1253			38	135	158					0.12
1/2	1	1254			26	110	156	0.250	0.250	0.4	0.110	0.11
5/8		1251				100	158			0.5		0.12
3/4						75	162			0.7	0.120	0.13
1	2					55	164		0.300	1.1		0.14
1-1/4						35	174			1.9	0.180	0.16

Mild steel – 300 A – O_2 Plasma / Air Shield – underwater (Core, VWI, OptiMix)

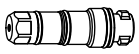

Shield retaining cap
420200


Shield
420491


Nozzle retaining cap
420365


Nozzle
420279


Swirl ring
420406


Electrode
420276


Water tube
420368

Flow rate (lpm/scfh)			
	N_2	O_2	Air
Pre flow	21 / 45	–	57 / 122
Pierce flow	–	45 / 95	57 / 122
Cut flow	–	45 / 95	57 / 122

Metric

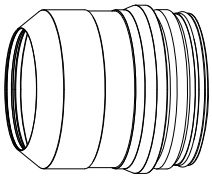
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
15	3	1206	35	90	26	3100	147	6.50	6.50	0.4	3.80	4.8
20	1					2300	149			0.6	3.30	4.2
25						1760	153		7.50	0.8		5.2
30	2					1380	158			1.5		5.8
32						1240	159			1.8	4.50	5.1
38	3					920	162			2.7		5.5
40						850	165			3.2		5.8

English

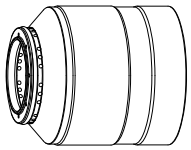
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/2	3	1206	35	90	26	140	145	0.250	0.250	0.4	0.150	0.15
5/8	1					115	148			0.5	0.130	0.15
3/4						95	148			0.7		0.16
1						65	154		0.300	1.0		0.18
1-1/4	2					50	159			1.8	0.180	0.19
1-1/2						35	163			3.0		0.20

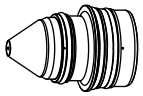
Cut charts for non-ferrous (stainless steel) processes – underwater

Stainless steel – 80 A – N_2 Plasma / N_2 Shield – underwater (Core, VWI, OptiMix)

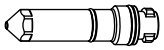

Shield retaining cap
420200

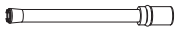

Shield
420309


Nozzle retaining cap
420365


Nozzle
420306


Swirl ring
420323


Electrode
420303


Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	51 / 108
Pierce flow	67 / 134
Cut flow	68 / 144

Metric

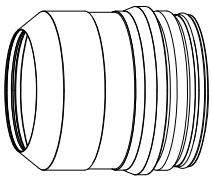
Material thickness		SYSTEM SETTINGS				CNC SETTINGS						
	Cut category	XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
mm				Plasma gas	Shield gas	mm/min	volts	mm	mm	seconds	mm	mm
3	3	2006	30	80	45	3400	119	5.08	5.08	0.3	2.50	1.6
4						2861	119					1.5
5		2007			40	2388	120				2.03	1.5
6	1					1983	118			0.5		1.6
7						1644	120					1.6
8						1371	124			0.6		1.6
10	2	2007	30	80	40	1027	128				2.03	1.8

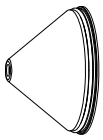
Stainless steel – 80 A – N_2 Plasma / N_2 Shield – underwater (Core, VWI, OptiMix) (continued)

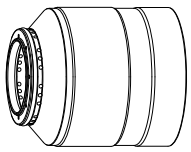
English

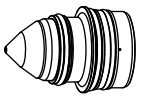
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	2006	30	80	45	124	119	0.200	0.200	0.3	0.080	0.06
3/16						99	120					0.06
1/4	1	2007			40	73	118			0.5		0.06
5/16						54	124			0.6		0.07
3/8						43	127					0.07

Stainless steel – 80 A – N_2 Plasma / H_2O Shield – underwater (VWI, OptiMix)

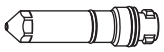

Shield retaining cap
420200

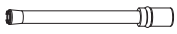

Shield
420300


Nozzle retaining cap
420365


Nozzle
420290


Swirl ring
420323


Electrode
420303


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	30 / 64	0.2 / 3*
Pierce flow	37 / 79	0.2 / 3*
Cut flow	24 / 51	0.4 / 6*

* Gallons per hour (gph)

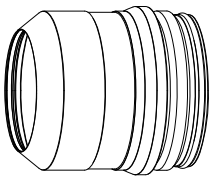
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
3	3	2010	10	80	30	3404	120	5.08	5.08	0.3	2.03	1.6
4						2866	124					1.5
5						2387	126			0.5		1.5
6	1					1969	129			0.6		1.6
7						1609	130					1.8
8						1310	132					2.0
10	2					889	135			0.8		2.0
12		2011		86		706	137					1.8

English

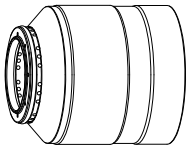
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
0.135 (10GA)	3	2010	10	80	30	124	122	0.200	0.200	0.3	0.080	0.06
3/16						99	124					0.06
1/4	1					72	131			0.5		0.07
5/16						54	133			0.6		0.08
3/8						36	134					0.08
1/2	2	2011		86		28	137			0.8		0.07

Stainless steel – 130 A – N_2 Plasma / N_2 Shield – underwater (Core, VWI, OptiMix)

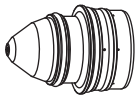


Shield retaining cap
420200

Shield
420318

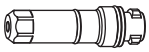


Nozzle retaining cap
420365

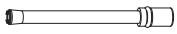


Nozzle
420315

Swirl ring
420314



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	92 / 195
Pierce flow	150 / 320
Cut flow	150 / 320

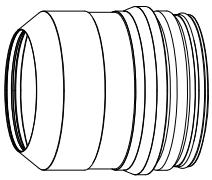
Metric

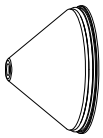
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2051	52	90	52	2184	160	6.10	6.10	0.4	2.54	2.2
7						2052	161					2.2
8						1834	163			0.5		2.3
10	1					1466	166					2.3
12						1321	167			0.6		2.3
15	2					935	168			0.7	3.05	2.4
20						533	180			1.3		2.8

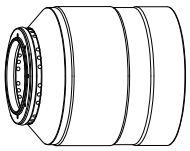
English

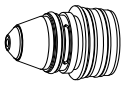
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2051	52	90	52	86	160	0.240	0.240	0.4	0.100	0.09
5/16						73	163			0.5		0.09
3/8	1					59	166					0.09
1/2						50	167			0.6		0.09
5/8	2					32	169			0.7	0.120	0.09
3/4						23	175			1.2		0.10

Stainless steel – 130 A – N_2 Plasma / H_2O Shield – underwater (VWI and OptiMix)

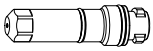

Shield retaining cap
420200


Shield
420469


Nozzle retaining cap
420365


Nozzle
420315


Swirl ring
420314


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	38	0.42 / 6.5*
Pierce flow	97	0.5 / 8*
Cut flow	97	0.5 / 8*

* Gallons per hour (gph)

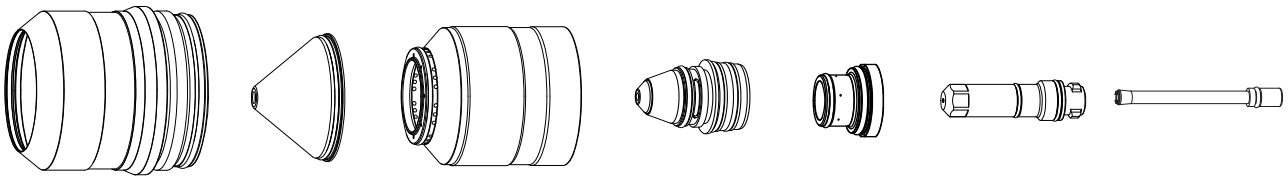
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
6	3	2052	25	90	25	2184	166	5.08	5.08	0.2	2.54	2.2
7						2057	168			0.3		2.3
8						1846	172			0.4		2.5
10	1					1486	178			0.5		2.7
12						1326	177			0.6		2.6
15	2					852	181	6.35	6.35	0.8	3.05	3.0
20						406	184			1.3		3.6

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/4	3	2052	25	90	25	86	166	0.200	0.200	0.2	0.100	0.09
5/16						73	172			0.4		0.10
3/8	1					60	178			0.5		0.11
1/2						50	177			0.6		0.10
5/8	2					27	183	0.250	0.250	0.8	0.120	0.13
3/4						18	183			1.3		0.13

Stainless steel – 170 A – N_2 Plasma / H_2O Shield – underwater (VWI, OptiMix)



Shield retaining cap	Shield	Nozzle retaining cap	Nozzle	Swirl ring	Electrode	Water tube
420200	420472	420365	420324	420314	420356	420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	19 / 40	0.4 / 6*
Pierce flow	47 / 100	0.5 / 8*
Cut flow	47 / 100	0.5 / 8*

* Gallons per hour (gph)

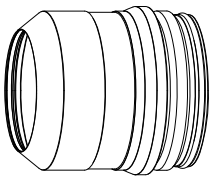
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
mm				Plasma gas	Shield gas	mm/min	volts	mm	mm	seconds	mm	mm
10	3	2058	30	90	30	1799	175	5.08	5.08	0.4	2.54	2.8
12	1					1595	177			0.5		2.9
15						1256	178					3.0
20	2					869	185	7.62	7.62	1.3		3.4
25						582	191		15.24	3.0	3.05	3.9

English

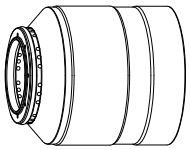
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
in				Plasma gas	Shield gas	in/min	volts	in	in	seconds	in	in
3/8	3	2058	30	90	30	73	175	0.200	0.200	0.4	0.100	0.11
1/2	1					60	178			0.5		0.11
5/8						45	178					0.12
3/4	2					36	184	0.300	0.300	1.0		0.13
1						22	192		0.600	3.0	0.120	0.15

Stainless steel – 170 A – N_2 Plasma / N_2 Shield – underwater (Core, VWI, OptiMix)

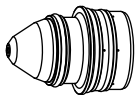


Shield retaining cap
420200

Shield
420327

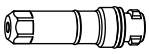


Nozzle retaining cap
420365

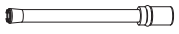


Nozzle
420324

Swirl ring
420314



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	99 / 210
Pierce flow	168 / 355
Cut flow	168 / 355

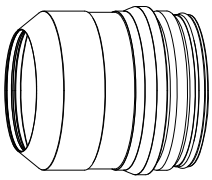
Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
10	3	2057	54	90	54	1813	164	6.10	6.10	0.3	2.54	2.6
12	1					1667	164			0.4		2.5
15						1115	169			0.6		2.8
20	2					641	177			1.3	3.05	3.1
25						368	186			1.7	3.81	3.6

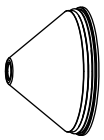
English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
3/8	3	2057	54	90	54	73	164	0.240	0.240	0.3	0.100	0.10
7/16						68	164			0.4		0.10
1/2	1					64	164					0.10
9/16						50	168			0.6		0.10
5/8						36	171			0.7		0.11
3/4	2					27	175			1.2	0.120	0.12
7/8						20	181			1.5	0.135	0.13
1						14	187			1.7	0.150	0.14

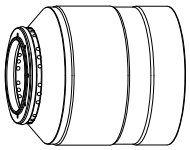
Stainless steel – 300 A – N_2 Plasma / N_2 Shield – underwater (Core, VWI, OptiMix)



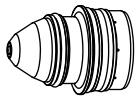
Shield retaining cap
420200



Shield
420362

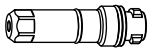


Nozzle retaining cap
420365

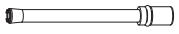


Nozzle
420359

Swirl ring
420323



Electrode
420356



Water tube
420368

Flow rate (lpm/scfh)	
	N_2
Pre flow	106 / 225
Pierce flow	181 / 385
Cut flow	181 / 385

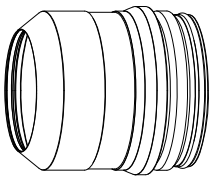
Metric

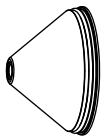
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
12	3	2054	54	90	54	2997	168	7.62	7.62	0.4	4.32	3.1
15						2424	174			0.5		3.2
20	1					1663	179			0.9	5.08	3.4
25						1299	182		12.70	1.5		3.5
30	2					986	185		15.24	2.0		3.6
32						889	186			2.2		3.6

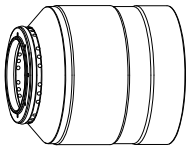
English

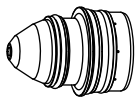
Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/2	3	2054	54	90	54	107	172	0.300	0.300	0.4	0.170	0.12
5/8						91	175			0.5		0.13
3/4	1					68	178			0.8	0.200	0.14
1						50	182		0.500	1.5		0.14
1-1/4	2					35	186		0.600	2.2		0.14

Stainless steel – 300 A – N_2 Plasma / H_2O Shield – underwater (VWI, OptiMix)

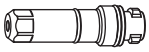

Shield retaining cap
420200

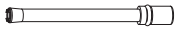

Shield
420475


Nozzle retaining cap
420365


Nozzle
420359


Swirl ring
420323


Electrode
420356


Water tube
420368

Flow rate (lpm/scfh)		
	N_2	H_2O
Pre flow	31 / 65	0.42 / 6.5*
Pierce flow	75 / 160	0.5 / 8*
Cut flow	75 / 160	0.5 / 8*

* Gallons per hour (gph)

Metric

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
mm						mm/min	volts	mm	mm	seconds	mm	mm
12	3	2055	22	90	22	1956	174	7.62	7.62	0.5	3.81	3.5
15						1795	182			0.9		3.5
20	1					1547	188			1.0	5.08	3.7
25						1184	191			1.2		3.9
30	2					904	193		15.24	1.9		4.0
32						813	194			2.0		4.7

English

Material thickness	Cut category	SYSTEM SETTINGS				CNC SETTINGS						
		XPR process ID	Shield pierce setting	Cutflow		Cut speed	Arc voltage	Transfer height	Pierce height	Pierce delay	Cut height	Kerf compensation
				Plasma gas	Shield gas							
in						in/min	volts	in	in	seconds	in	in
1/2	3	2055	22	90	22	77	181	0.300	0.300	0.5	0.150	0.14
5/8						68	182			1.0		0.14
3/4	1					64	188				0.200	0.15
1						45	191			1.2		0.15
1-1/4	2					32	194		0.600	2.0		0.16

Torch geometry for bevel cutting

The XPR consumable parts are designed to maintain a nearly-constant tool center point. Torch length and shield-face diameter vary with cutting current, as shown in Table 4.

Refer to Table 4 to see the bevel geometry that you can expect with XPR torches during ferrous (mild steel) and non-ferrous (stainless steel/aluminum) consumables.

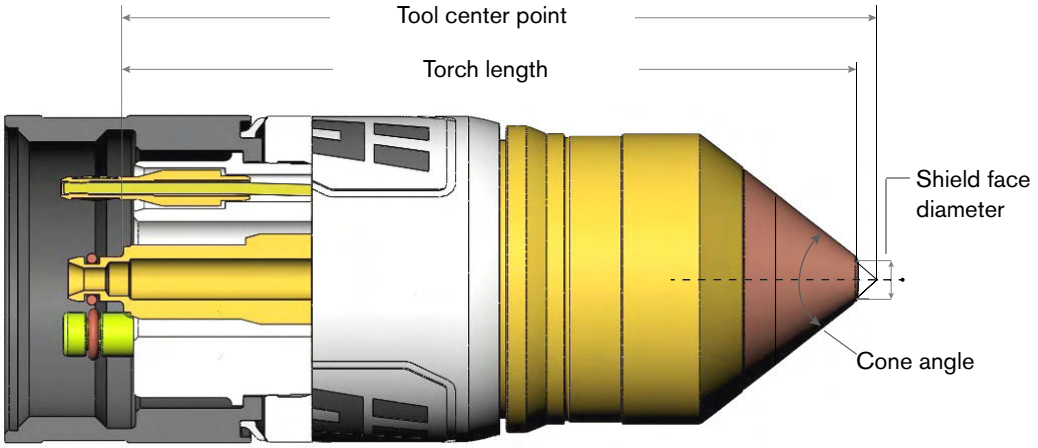


Table 4 – Bevel geometries for sample ferrous and non-ferrous processes

Bevel geometry* for ferrous (mild steel) processes				
Mild steel process	**Cone angle**	**Shield face diameter**	**Torch length**	**Tool center point**
300 A mild steel	76°	8.64 mm (0.340 in.)	128.27 mm (5.050 in.)	133.81 mm (5.268 in.)
220 A mild steel	76°	7.37 mm (0.290 in.)	129.08 mm (5.082 in.)	133.81 mm (5.268 in.)
170 A mild steel	76°	7.24 mm (0.285 in.)	128.45 mm (5.057 in.)	133.07 mm (5.239 in.)

Bevel geometry* for ferrous (mild steel) processes				
Mild steel process	**Cone angle**	**Shield face diameter**	**Torch length**	**Tool center point**
130 A mild steel	76°	6.73 mm (0.265 in.)	129.21 mm (5.087 in.)	133.53 mm (5.257 in.)
80 A mild steel	76°	6.10 mm (0.240 in.)	129.92 mm (5.115 in.)	133.83 mm (5.269 in.)
50 A mild steel	76°	5.72 mm (0.225 in.)	130.07 mm (5.121 in.)	133.73 mm (5.265 in.)
30 A mild steel	76°	5.46 mm (0.215 in.)	130.23 mm (5.127 in.)	133.73 mm (5.265 in.)

Bevel geometry* for non-ferrous (stainless steel and aluminum) processes				
Non-ferrous process	**Cone angle**	**Shield face diameter**	**Torch length**	**Tool center point**
300 A non-ferrous	76°	8.00 mm (0.315 in.)	128.85 mm (5.073 in.)	133.99 mm (5.275 in.)
170 A non-ferrous	76°	7.25 mm (0.285 in.)	128.96 mm (5.077 in.)	133.58 mm (5.259 in.)
130 A non-ferrous	76°	6.60 mm (0.260 in.)	129.06 mm (5.081 in.)	133.27 mm (5.247 in.)
80 A non-ferrous, dry	76°	6.10 mm (0.240 in.)	129.36 mm (5.093 in.)	133.27 mm (5.247 in.)
80 A non-ferrous, wet	76°	6.10 mm (0.240 in.)	129.41 mm (5.095 in.)	133.32 mm (5.249 in.)
60 A non-ferrous, dry	76°	6.10 mm (0.240 in.)	129.36 mm (5.093 in.)	133.27 mm (5.247 in.)
60 A non-ferrous, wet	76°	6.10 mm (0.240 in.)	129.41 mm (5.095 in.)	133.32 mm (5.249 in.)
40 A non-ferrous, dry	76°	6.10 mm (0.240 in.)	129.36 mm (5.093 in.)	133.27 mm (5.247 in.)

* Bevel geometries are based on the torch dimensions and features described in the instruction manual that came with your XPR cutting system.