

Urgent Field Safety Notice

Medtronic Strata II, Delta, and CSF-Flow Control Valves and Shunts

Variation in Radiopacity

January 2021

Medtronic reference: FA952

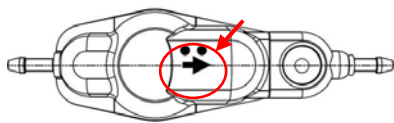
Dear Physician or Healthcare Professional,

The purpose of this letter is to inform you of the potential for variation in radiopaque marking visibility under radiographic imaging for Medtronic adjustable and fixed-pressure valves that are used in the management of hydrocephalus. Please find attached the list of impacted batch numbers. This issue does not impact the therapeutic pressure performance of these devices, however variation in radiopaque marking visibility post-implant may limit the ability to determine pressure settings and flow direction with radiographic imaging. Alternative methods for determining pressure settings and flow direction are described below.

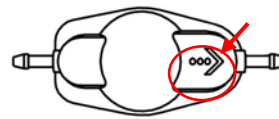
Background:

After implanting Medtronic adjustable or fixed-pressure valves for management of hydrocephalus, there may be situations where it is desirable to determine or confirm pressure settings and flow direction. One method for this determination is to utilize radiographic imaging. Medtronic valves contain radiopaque tantalum-impregnated markings that can be viewed under plain radiographic imaging to determine the pressure level and/or current pressure setting of the valve and direction of flow. Until 22 December 2020, Medtronic has received 9 reports regarding inadequate visualization of the radiopaque markers under radiographic imaging. No reports of patient harm have been associated with this issue. Inadequate visualization of the radiopaque markers should not significantly hinder the physician’s ability to manage a patient with an affected product, nor would this impact treatment decisions for symptomatic patients. If the physician is unable to visualize the radiopaque markers, the physician may use other methods (e.g. StrataVarius or Indicator/Locator tool, physical assessment) to obtain the necessary information, or the physician may consider utilizing additional radiographic imaging with contrast to determine the direction of flow.

The below illustrations of Medtronic Strata and fixed-pressure valves depict the location of the radiopaque markings on these devices. The markings will vary based on the type of valve and are described in labeling.

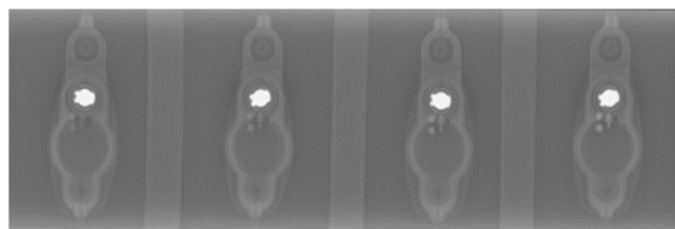


Strata Valve



Fixed – pressure valve

The below images A through D illustrate potential variation in visibility of tantalum-impregnated markings (arrow and dots) under radiographic imaging. Image D shows expected visualization, with reduced visibility in Images A through C.



A

B

C

D



In response to this issue, Medtronic is working to reduce variation and ensure radiographic visibility of the radiopaque markings. While these efforts are underway, the following information should be considered in the event pressure setting or flow direction markings are not visible under radiographic imaging.

Determining/Confirming Pressure Settings:

| | |
|-----------------------------------|--|
| Strata Valves | Medtronic Neurosurgery Strata II valves provide a non-invasive method to address changing patient needs in the management of hydrocephalus. The unique valve design allows the physician to adjust valve pressure or performance level by using the Medtronic Neurosurgery Strata II Adjustment Kit or the StrataVarius Adjustment System. |
| Delta and CSF-Flow Control Valves | All valves and shunts are accompanied by Patient cards/Wallet cards that are provided to patients to maintain in their records. Refer to these cards as they may provide the surgeon with information regarding pressure level/current pressure setting of the valve, valve type, and manufacturer. |

Determining/Confirming Flow Direction:

Placement that results in incorrect flow direction can present with clinical symptoms within a few hours post-implant of the valve. However, in the unlikely event flow direction is uncertain, radiographic imaging with contrast may be considered, if necessary, for determining flow direction. This imaging procedure may have inherent risks as well, and the decision to proceed is at the physician's clinical discretion.

| | |
|-----------------------------------|---|
| Strata Valves | Ventricular and peritoneal catheters used with shunts are radiopaque and may help determine the direction of flow of Strata valves based on the overall orientation of the valve in relationship to the catheters (Radiopaque valve rotor must be towards the peritoneal catheter; valve dome must be towards ventricular catheter). If necessary, radiographic imaging with contrast may be performed to determine flow direction of a valve. |
| Delta and CSF-Flow Control Valves | If necessary, radiographic imaging with contrast may be performed to determine flow direction of a valve. |

Actions:

1. Be aware that radiopaque marker visualization with impacted devices under radiographic imaging may be insufficient to determine the pressure level and/or flow direction. In these situations, alternative methods for this determination should be considered, if deemed necessary per clinical discretion.
2. Share this information with all those who need to be aware within your organization.
3. If desired, radiographic imaging of packaged devices may be conducted pre-operatively to determine marker radiopacity. However, marker visibility of packaged devices under radiographic imaging may not be representative of marker visibility post-implant.

Additional Information:

Please maintain a copy of this letter for your records. The Competent Authority of your country has been notified of this action.

Medtronic will honor standard returned goods policy for products for credit, and if available, replacement. If you have any questions regarding this communication, please contact your Medtronic representative.

Sincerely,

| Model # | Product Description | Strata™ | Lot # | | | |
|---------|--|------------|------------|------------|------------|--|
| 27739 | SHUNT 27739 STRATA NSC SNAP SML 120CM | 0219498492 | | | | |
| 27740 | SHUNT 27740 STRATA NSC SNAP REG 120CM | 0219471229 | | | | |
| 27812 | VALVE 27812 STRATA II SM EXTRACTED | 0218700308 | | | | |
| 27814 | SHUNT 27814 STRATA II ASSY SML | 0219498495 | 0220423969 | | | |
| 27815 | SHUNT 27815 STRATA II ASSY REG | 0219378043 | 0219802947 | | | |
| 27816 | SHUNT 27816 SNAP STRATA II SMALL | 0219395919 | 0219395920 | 0219395921 | 0219471351 | |
| 27817 | SHUNT 27817 SNAP STRATA II REG | 0219470063 | 0219470064 | 0219471352 | | |
| 27818 | SHUNT 27818 STRATA II SML BIO | 0219127878 | 0219127880 | 0219551126 | 0219551134 | |
| | | 0219127879 | 0219550965 | 0219551128 | | |
| 27819 | SHUNT 27819 STRATA II REG BIO | 0219127871 | 0219127875 | 0219480199 | 0219551138 | |
| | | 0219127872 | 0219127876 | 0219480200 | 0219551139 | |
| | | 0219127873 | 0219480196 | 0219499010 | 0219551140 | |
| | | 0219127874 | 0219480197 | 0219551136 | | |
| 27823 | SHUNT 27823 STRATA II ASSY SNP REG BIO | 0219471237 | 0219931727 | | | |
| 27827 | VALVE 27827 STRATA II REG EXTRACTED | 0218700307 | 0219267902 | | | |
| 27888 | SHNT 27888 STRATA II SNAP ASSY REG PCATH | 0219471227 | 0219931726 | | | |
| 42335 | VALVE 42335 STRATA NSC BURR HOLE | 0219467660 | 0219467661 | 0219467663 | | |
| 42355 | VALVE 42355 FP STRATA NSC SMALL | 0217207127 | 0218605901 | 0219171583 | 0219480335 | |
| | | 0217207128 | 0218605902 | 0219171709 | 0219497185 | |
| | | 0218226186 | 0218609097 | 0219352151 | 0219497646 | |
| | | 0218247716 | 0218609100 | 0219352152 | 0219497661 | |
| | | 0218287189 | 0218609101 | 0219480334 | | |
| 42365 | VALVE 42365 FP STRATA NSC REGULAR | 0217205762 | 0218415313 | 0219081907 | 0219396254 | |
| | | 0217205763 | 0218415314 | 0219115460 | 0219396255 | |
| | | 0217207129 | 0218415315 | 0219115461 | 0219479762 | |
| | | 0218226204 | 0218609102 | 0219307371 | 0219479763 | |
| | | 0218226205 | 0218609103 | 0219307372 | 0219497751 | |
| | | 0218287187 | 0218609104 | 0219352155 | 0219497755 | |
| | | 0218287188 | 0218609105 | 0219352157 | | |
| | | 0218287201 | 0218609586 | 0219396250 | | |
| | | 0218396013 | 0218609587 | 0219396252 | | |
| 42836 | VALVE 42836 STRATA II BURR HOLE | 0218807819 | 0219815331 | 0220314447 | 0220393227 | |
| | | 0219309515 | 0220314446 | 0220393226 | | |
| 46856 | ASSY 46856 FP-STRATA 2 SHUNT SML | 0219929565 | 0220217121 | 0220278246 | | |

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|--------------|---|--------------|----------------------------------|------------|------------|
| 42866 | VALVE 42866 FP-STRATA 2 REGULAR | 0216105046 | 0216868360 | 0217971139 | 0218609596 |
| | | 0216105047 | 0216868581 | 0218033424 | 0218609599 |
| | | 0216105052 | 0216868582 | 0218033629 | 0218609600 |
| | | 0216105053 | 0216868583 | 0218033630 | 0218610066 |
| | | 0216259301 | 0217254779 | 0218033631 | 0218639473 |
| | | 0216259302 | 0217254780 | 0218033632 | 0218639474 |
| | | 0216362463 | 0217254781 | 0218033633 | 0218639475 |
| | | 0216362464 | 0217254782 | 0218033634 | 0218639476 |
| | | 0216362467 | 0217254783 | 0218033635 | 0218639477 |
| | | 0216363865 | 0217254784 | 0218033636 | 0218639478 |
| | | 0216418659 | 0217254785 | 0218033637 | 0218964983 |
| | | 0216418660 | 0217255246 | 0218033638 | 0219000135 |
| | | 0216513862 | 0217255247 | 0218033639 | 0219000143 |
| | | 0216513864 | 0217260220 | 0218033640 | 0219081908 |
| | | 0216579072 | 0217260221 | 0218033641 | 0219103305 |
| | | 0216579074 | 0217260969 | 0218034268 | 0219115462 |
| | | 0216666644 | 0217260970 | 0218286600 | 0219115463 |
| | | 0216729340 | 0217778042 | 0218286601 | 0219118937 |
| | | 0216732201 | 0217778043 | 0218286602 | 0219123053 |
| | | 0216732202 | 0217817034 | 0218286603 | 0219128329 |
| | | 0216732203 | 0217817035 | 0218286604 | 0219307369 |
| | | 0216732204 | 0217817036 | 0218286605 | 0219307370 |
| | | 0216732205 | 0217817037 | 0218287186 | 0219395719 |
| | | 0216733948 | 0217817038 | 0218287199 | 0219395720 |
| | | 0216821015 | 0217817039 | 0218287200 | 0219395721 |
| | | 0216821121 | 0217817040 | 0218417806 | 0219395723 |
| | | 0216821122 | 0217923546 | 0218417807 | 0219395724 |
| | | 0216821123 | 0217923549 | 0218417808 | 0219395725 |
| | | 0216821138 | 0217923550 | 0218417809 | 0219480328 |
| | | 0216821139 | 0217923551 | 0218417810 | 0219480329 |
| | | 0216868349 | 0217923552 | 0218417811 | 0219480330 |
| | | 0216868350 | 0217923555 | 0218417812 | 0219480331 |
| | | 0216868351 | 0217971129 | 0218605895 | 0219480332 |
| | | 0216868352 | 0217971131 | 0218605896 | 0219480333 |
| | | 0216868355 | 0217971134 | 0218605897 | 0219497762 |
| | | 0216868356 | 0217971135 | 0218605899 | 0219497763 |
| | | 0216868357 | 0217971136 | 0218605900 | 0219497764 |
| | | 0216868358 | 0217971137 | 0218609594 | 0220440998 |
| | | 0216868359 | 0217971138 | 0218609595 | 0220440999 |
| | | 44420 | SHUNT 44420 STRATA KIT NSC LP | 0219467664 | 0220040131 |
| 0219467665 | 0220048557 | | | 0220262093 | |
| 0219468526 | 0220075411 | | | 0220355866 | |
| 44421 | KIT 44421 STRATA NSC LP OPEN LUMBAR | 0219332742 | 0220075412 | 0220141394 | 0220328424 |
| | | 0219332743 | 0220121098 | 0220166866 | |
| 44430 | SHUNT 44430 STRATA KIT NSC LP ASSY | 0219498721 | | | |
| 44465 | VALVE 44465 STRATA NSC LP | 0217268265 | 0218808947 | | |
| 46636 | SHUNT 46636 STRATA NSC BURR | 0220285340 | | | |
| 46655 | ASSY 46655 FP SHUNT STRATA NSC SMALL | 0219498725 | | | |
| 46665 | ASSY 46665 FP SHUNT STRATA NSC REG | 0220059296 | 0220400355 | | |
| 46837 | SHUNT 46837 STRATA II BURR HOLE | 0219354861 | | | |

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|--------------|--------------------------------|--------------|-------------------------------------|------------|------------|------------|--|
| 42856 | VALVE 42856 FP-STRATA 2 SMALL | 0216868584 | 0218033643 | 0218605894 | 0218873200 | | |
| | | 0217254777 | 0218033644 | 0218609602 | 0218873201 | | |
| | | 0217254778 | 0218033645 | 0218609603 | 0218873202 | | |
| | | 0217255248 | 0218034266 | 0218609604 | 0218964967 | | |
| | | 0217778039 | 0218034267 | 0218639469 | 0219053149 | | |
| | | 0217778040 | 0218286596 | 0218639470 | 0219071024 | | |
| | | 0217778041 | 0218286597 | 0218639471 | 0219103301 | | |
| | | 0217817029 | 0218286598 | 0218639472 | 0219497757 | | |
| | | 0217817030 | 0218286599 | 0218787024 | 0219497758 | | |
| | | 0217817031 | 0218416085 | 0218787025 | 0219497759 | | |
| | | 0217817032 | 0218605889 | 0218787926 | 0219497760 | | |
| | | 0217817033 | 0218605890 | 0218787927 | 0219497761 | | |
| | | 0217971140 | 0218605891 | 0218787928 | | | |
| | | 0217971141 | 0218605892 | 0218787934 | | | |
| | | 0218033642 | 0218605893 | 0218873198 | | | |
| | | 46866 | ASSY 46866 FP-STRATA 2 SHUNT REG | 0219132084 | 0219132085 | 0219132126 | |
| | | 92355 | VALVE 92355 STRATA NSC SML BIOGLIDE | 0220288366 | | | |
| 92856 | VALVE 92856 FP STRATA 2 SML BG | 0219123889 | 0219330677 | | | | |
| 92866 | VALVE 92866 FP STRATA 2 REG BG | 0219123853 | 0219123854 | | | | |

| Model # | Product Description | Delta™ | | Lot # | |
|----------------|---|------------|------------|------------|------------|
| 24048 | VALVE 24048 DELTA RGL PL 0.5 | 0218796596 | | | |
| 24053 | CHAMBER 24053 DELTA | 0220173993 | 0220631950 | | |
| 24147 | VALVE 24147 DELTA SML PL 0.5 | 0218806959 | 0219354642 | 0220201977 | |
| 25121-1 | ASSY 25121-1 DELTA SML SNAP PERIT 120 | 0219404900 | | | |
| 25121-5 | ASSY 25121-5 DELTA SML SNAP P-CATH 120 | 0219404902 | | | |
| 25131-1 | DELTA 25131-1 INTL ONLY SHUNT SM 1.0 | 0219501288 | 0219501289 | | |
| 25131-2 | SHUNT 25131-2 INTL ONLY DELTA SM 2.0 | 0219869817 | | | |
| 25131-5 | SHUNT 25131-5 INTL ONLY DELTA SM 1.5 | 0219278742 | 0219698794 | 0220112694 | 0220262088 |
| | | 0219278743 | 0219809171 | 0220180486 | 0220397742 |
| | | 0219278744 | 0219948890 | 0220217387 | 0220397744 |
| 25132-2 | SHUNT 25132-2 INTL ONLY DELTA REG.2.0 | 0219272923 | 0220279501 | | |
| 25132-5 | SHUNT 25132-5 INTL ONLY DELTA REG 1.5 | 0219278741 | | | |
| 27219-1 | VALVE 27219-1 NEONATE DELTA | 0219927059 | 0220149614 | 0220393237 | |
| 27219-2 | VALVE 27219-2 NEONATE DELTA | 0219281777 | | | |
| 27219-5 | VALVE 27219-5 DELTA NEONATE 1.5 IMP | 0219948893 | 0220166870 | 0220236215 | 0220720015 |
| 27554-1 | VALVE 27554-1 DELTA SM EXTRACTED PL 1.0 | 0220285334 | | | |
| 27554-2 | VALVE 27554-2 DELTA SM EXTRACTED PL 2.0 | 0220285335 | | | |

| | | | | | |
|----------------|--|--|--|--|--|
| 27554-5 | VALVE 27554-5 DELTA SM EXTRACTED PL 1.5 | 0220285336 | | | |
| 42812 | VALVE 42812 DELTA SMALL LEVEL I | 0217135294 0218720240 | 0218720241 0218992842 | 0219621242 0220251046 | |
| 42813 | VALVE 42813 DELTA SMALL LEVEL 1.5 | 0217135293 0218720605 0218721466 | 0218721467 0218721468 0218992826 | 0218992827 0219154178 0219289039 | 0219289040 0219312362 0219761091 |
| 42814 | VALVE 42814 DELTA SMALL LEVEL II | 0217135298 0218720604 | 0219284249 0219284250 | 0219761089 | |
| 42822 | VALVE 42822 DELTA REG PRESS LEVEL I IMP | 0217150648 0217244574 | 0217244584 0218721469 | 0218721470 0218986445 | |
| 92823 | VALVE 92823 BIOGLIDE DELTA REG. 1.5 | 0219067897 | | | |
| 42824 | VALVE 42824 DELTA REG PRESS LEVEL II IMP | 0217135295 | 0217135302 | 0219423220 | 0219761099 |
| 46812 | ASSY 46812 DELTA SHUNT SMALL PL 1 | 0219279163 | | | |
| 46813 | ASSY 46813 DELTA SHUNT SM LEV 1.5 | 0219278857 | 0219278858 | 0220352837 | 0220398089 |
| 46822 | ASSY 46822 DELTA SHUNT REG P/L 1 | 0219279162 | 0220400352 | 0220602457 | |
| 42823 | VALVE 42823 DELTA REG LEVEL 1.5 | 0217135290 0217286224 0217344860 | 0217344861 0218720187 0218753744 | 0218753745 0219312363 0219800605 | 0219802486 |
| 46824 | ASSY 46824 DELTA SHUNT REG P/L 2 | 0220088041 | 0220602458 | | |
| 46832 | SHUNT 46832 NEONATAL DELTA SNAP L 1 | 0220285342 | | | |
| 46833 | SHUNT 46833 NEONATAL DELTA SNAP 1.5 | 0219894798 | 0220398845 | | |
| 46834 | SHUNT 46834 NEONATAL DELTA SNAP L 2 | 0220285343 | | | |
| 92822 | VALVE 92822 BIOGLIDE DELTA REG. 1.0 | 0219067896 | | | |
| 46823 | ASSY 46823 DELTA SHUNT REG LEV 1.5 | 0219279147 | 0220352830 | | |

| Model # | Product Description | CSF-Flow Control™ | | Lot # | | | |
|----------|--|-------------------|---|------------|------------|--|--|
| 9003 A | KIT 9003 A INTL ONLY SHUNT CONT SM LO | 0219354851 | 0219354853 | 0220114768 | | | |
| | | 0219354852 | 0219354854 | 0220398628 | | | |
| 9003 B | KIT 9003 B INTL ONLY SHUNT CONT SM ME | 0219278737 | 0219851769 | 0220085757 | 0220173989 | | |
| | | 0219278738 | 0219851770 | 0220099077 | 0220285673 | | |
| | | 0219278739 | 0219981926 | 0220099078 | 0220352833 | | |
| | | 0219278740 | 0220053812 | 0220134024 | 0220398644 | | |
| | | 0219708098 | 0220053813 | 0220134025 | | | |
| | | 0219708099 | 0220081704 | 0220156462 | | | |
| | | 0219851768 | 0220085756 | 0220156463 | | | |
| 9003 C | KIT 9003 C INTL ONLY SHUNT CONT SM HI | 0219278736 | 0220393229 | | | | |
| 9003 D | KIT 9003 D SHUNT INTL ONLY CONT REG L | 0219278734 | 0219278735 | 0220011262 | | | |
| 9003 E | KIT 9003 E SHUNT INTL ONLY CONT REG M | 0219278731 | 0219769316 | 0219851773 | 0220680023 | | |
| | | 0219278733 | 0219851771 | 0220305451 | | | |
| | | 0219769315 | 0219851772 | 0220622330 | | | |
| 9003 F | KIT 9003 F SHUNT INTL ONLY CONT REG H | 0219354855 | 0219927060 | 0220546836 | | | |
| 9040 A | KIT 9040 A SHUNT INTL ONLY BH 12MM LOW | 0219278730 | 0220011259 | 0220397733 | | | |
| 9040 B | KIT 9040 B SHUNT INTL ONLY BH 12MM MED | 0219127889 | 0219128120 | 0220099076 | 0220397688 | | |
| | | 0219128109 | 0219128121 | 0220102737 | 0220397689 | | |
| | | 0219128111 | 0219917405 | 0220118172 | 0220397691 | | |
| | | 0219128112 | 0220009922 | 0220156744 | 0220397699 | | |
| | | 0219128113 | 0220009923 | 0220156745 | 0220397703 | | |
| | | 0219128115 | 0220040136 | 0220201972 | 0220400359 | | |
| | | 0219128117 | 0220059298 | 0220201979 | 0220702309 | | |
| | | 0219128118 | 0220059299 | 0220217393 | | | |
| | | 0219128119 | 0220099075 | 0220249127 | | | |
| 9040 C | KIT 9040 C SHUNT INTL ONLY BH 12MM HIGH | 0219969972 | | | | | |
| 9040 D | KIT 9040 DSHUNT INTL ONLY BH 16MM LOW | 0219272921 | 0219950183 | | | | |
| 9040 E | KIT 9040 E SHUNT INTL ONLY BH 16MM MED | 0219127462 | 0219127895 | 0219917404 | 0220262090 | | |
| | | 0219127463 | 0219127896 | 0219988521 | 0220285669 | | |
| | | 0219127464 | 0219127897 | 0220075419 | 0220285670 | | |
| | | 0219127465 | 0219127898 | 0220141390 | 0220285672 | | |
| | | 0219127886 | 0219698790 | 0220141391 | 0220301203 | | |
| | | 0219127887 | 0219698792 | 0220141405 | 0220324602 | | |
| | | 0219127890 | 0219721377 | 0220141706 | 0220330904 | | |
| | | 0219127891 | 0219721378 | 0220156743 | 0220360618 | | |
| | | 0219127892 | 0219721379 | 0220173988 | 0220637047 | | |
| | | 0219127893 | 0219721380 | 0220249134 | | | |
| | | 0219127894 | 0219721381 | 0220255058 | | | |
| | | 9040 F | SHUNT 9040 F KIT INTL BH 16MM HIGH | 0219278729 | 0219698786 | | |
| | | 22011 L | SHUNT 22011 L INTL ONLY ULTRA SM LOW | 0219278853 | 0219278854 | | |
| 22011 LL | SHUNT 22011 LL INTL ONLY ULTRA SM L-L | 0220099072 | | | | | |

| | | | | | |
|------------------|--|--|--|--|--|
| 22011 M | SHUNT 22011 M INTL ONLY ULTRA SM MED | 0219278855 0219278856 0219768090 | 0219768091 0219798970 0219798971 | 0219798972 0220010048 0220112693 | 0220141392 |
| 22017 B-L | SHUNT 22017 B-L ASSY US PER 90CM SM LOW | 0219802495 | | | |
| 22017 B-M | SHUNT 22017 B-M ASSY US PER 90CM SM MED | 0219802494 | | | |
| 22017B-LL | SHUNT 22017B-LL ASSY US PER 90CM SM LL | 0219583129 | 0220286100 | | |
| 23093 | VALVE 23093 CONT. REG. LOW-LOW | 0218796592 | 0219952709 | | |
| 27102 | VALVE 27102 CONTOURED SML LOW LOW | 0218806424 | 0219316930 | 0220280248 | |
| 27553 M | VALVE 27553 M CSF-FLOW CNTRL SM EXTR MP | 0220286709 | | | |
| 27643M | SHUNT 27643M ASSY SM PCATH130CM MED | 0219480202 | | | |
| 27683M | SHUNT 27683M RG SNP PCATH90 PLI STD OE | 0219802492 | | | |
| 42312 | VALVE 42312 SM CONTOURED LOW PRES IMP | 0218045303 0218045304 0218045527 0218408997 | 0218408998 0218408999 0218590082 0218721471 | 0218721472 0219234579 0219497114 0219648109 | 0219978722 0220100564 0220444728 |
| 42314 | VALVE 42314 SM CONTOURED MED PRESS IMP | 0217286212 0217286213 0217286214 0217706616 0217706621 0217706622 0217706623 0217962420 0217962421 | 0217971628 0217971633 0218409003 0218409004 0218409005 0218590077 0218590078 0218590079 0218590080 | 0218590081 0218720196 0218720202 0218972089 0218972090 0219234580 0219312365 0219375930 0219761087 | 0220122285 0220124886 0220124887 0220124888 0220272309 0220444084 0220444085 0220444726 |
| 42316 | VALVE 42316 SM CONTOURED HIGH PRESS | 0217286211 0217706612 | 0217962419 0217971634 | 0217971635 0218424703 | 0218424704 0218590071 |
| 42322 | VALVE 42322 CONTOURED REG LOW PRESS IMP | 0217286216 0217962409 | 0217962418 0217971637 | 0217971638 0218424701 | 0218424702 |
| 42324 | VALVE 42324 CONTOURED REG MED PRESS IMP | 0217962422 0217962423 0217962424 0217962425 0218402220 0218408987 0218408988 0218408989 0218408990 | 0218408991 0218408992 0218408993 0218408994 0218408996 0218590073 0218590074 0218590075 0218590076 | 0218720244 0218720287 0218720289 0219234581 0219234582 0219320159 0219320160 0219320162 0219320163 | 0219574223 0219761097 0219910255 0219910256 0220324658 0220530229 |
| 42326 | VALVE 42326 CONT HIGH PRESS IMP | 0218590084 0218590085 | 0219312364 0219978742 | 0220444083 | |
| 42410 | VALVE 42410 ULTRA SMALL LOW-LOW | 0219277363 | 0219278519 | 0219278520 | |
| 42414 | VALVE 42414 ULTRA SMALL MEDIUM PRESS IMP | 0219278516 0219278517 | 0219374313 0219374314 | 0219733266 0219733267 | |
| 42532 | VALVE 42532 BURR HOLE 12MM LOW PRESS IMP | 0218605545 | 0218605686 | | |

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|--------------|---|--|--|--|--|
| 42534 | VALVE 42534 BURR HOLE 12MM MED PRESS IMP | 0218605539 0218605540 0218605541 0218605542 | 0218605543 0218605544 0219375125 0219375926 | 0219375927 0219375928 0219375929 0219438310 | 0219761086 0219910252 0219910253 0220444735 |
| 42536 | VALVE 42536 BURR HOLE 12MM HI PRESS IMP | 0218605538 | | | |
| 42542 | VALVE 42542 BURR HOLE 16 MM LOW IMP | 0218605536 | 0218605537 | 0220280189 | |
| 42544 | VALVE 42544 BURR HOLE 16MM MED PRESS IMP | 0218605688 0218605689 0218605690 0218605691 0218978999 0218979001 | 0218979002 0218979003 0218979005 0218979086 0218979087 0219123064 | 0219123586 0219123588 0219123589 0219422860 0219422861 0219465702 | 0219465703 0219761093 0219761094 0219761095 0219761096 0220272311 |
| 42546 | VALVE 42546 BURR HOLE 16MM HI PRESS IMP | 0218605687 | 0219579789 | | |
| 46564 | SHUNT 46564 CSF SNAP ASSY US MEDIUM | 0219894795 | | | |
| 46622 | SHUNT 46622 CSF ASSY SMALL LOW CONT C/P | 0219279151 | 0220288369 | | |
| 46624 | SHUNT 46624 CSF ASSY SMALL MED CONT C/P | 0219278874 | 0219894797 | 0220201981 | 0220602456 |
| 46626 | SHUNT 46626 CSF ASSY SMALL HIGH CONT C/P | 0220285339 | | | |
| 46642 | SHUNT 46642 ASSY REG LOW C/P-90CM | 0219279160 | | | |
| 46644 | SHUNT 46644 ASSY REG MED C/P-90CM | 0219278877 | 0219278878 | 0219278879 | 0219278880 |
| 46646 | SHUNT 46646 ASSY REG HIGH C/P-90CM | 0219694364 | 0220075413 | 0220075414 | |
| 92322 | VALVE 92322 CSF CONT REG LOW BIO | 0220522999 | | | |
| 92324 | VALVE 92324 CSF CONT REG MED BIO | 0219067893 | 0219067894 | 0220400350 | |