

<h2 style="margin: 12pt 0cm 0.0001pt 28.8pt; text-indent: -28.8pt; line-height: normal; text-align: justify;">Kao dio detekcije i popravke kvarovi trebaju biti detrminisani prema koli?ini vode koja se kroz njih gubi. </h2> <h2 style="margin: 12pt 0cm 0.0001pt 28.8pt; text-indent: -28.8pt; line-height: normal; text-align: justify;">Postoje dvije empirijske i jedna matemati?ka metoda kojom se odre?uje vrijednost kvara.</h2> <h3 style="margin: 12pt 0cm 0.0001pt 36pt; text-indent: -36pt; line-height: normal; text-align: justify;">Odre?ivanje vrijednosti kvara kori?tenjem posude poznate zapremine i dr?operice</h3> <p style="text-align: justify;">Ovo je najjednostavnija metoda za odre?ivanje vrijednosti kvara.</p> <p style="text-align: justify;">Posuda poznate zapremine se puni vodom odre?eno vrijeme i na osnovu toga se ra?una protok vode kroz otvor kvara. Ukoliko je kvar manji posuda se dr?i jednu minutu i dobija se vrijednost kvara izra?ena u l/min.</p> <p style="text-align: justify;">Ako se posuda mora dr?ati kra?e vrijeme onda se prora?un vr?i prema slijede?oj tabeli:</p> <table style="border-collapse: collapse; border: none;" border="1" cellspacing="0" cellpadding="0"> <tr> <td style="width: 8cm; border: 1pt solid windowtext; padding: 0cm 5.4pt;" valign="top" width="302"> <p>Vrijeme u sekundama</p> </td> <td style="width: 2cm; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center;" align="center">6</p> </td> <td style="width: 2cm; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center;" align="center">10</p> </td> <td style="width: 2cm; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center;" align="center">15</p> </td> <td style="width: 2cm; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center;" align="center">30</p> </td> </tr> <tr> <td style="width: 8cm; border-style: none solid solid; border-right-color: windowtext; border-bottom-color: windowtext; border-left-color: windowtext; border-right-width: 1pt; border-left-width: 1pt; padding: 0cm 5.4pt;" width="302"> <p>Pomno?iti zapreminu posude u litrima sa:</p> </td> <td style="width: 2cm; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center;">

>10</p> </td> <td style="width: 2cm; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center; align="center">>6</p> </td> <td style="width: 2cm; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center; align="center">>4</p> </td> <td style="width: 2cm; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt;" width="76"> <p style="text-align: center; align="center">>2</p> </td> </tr> </table> <p style="margin-left: 36pt;">Tabela . Koeficijent za mno?enje zapremine posude poznate zapremine kod odre?ivanja vrijednosti kvara</p> <p>Dobivena vrijednost predstavlja vrijednost kvara izra?ena u l/min.</p> <p>
</p> <h3 style="margin: 12pt 0cm 0.0001pt 36pt; text-align: justify; text-indent: -36pt; line-height: normal;">Odre?ivanje vrijednosti kvara kori?tenjem crijeva i vodomjera</h3> <p>Ova metoda zahtjeva izvjesne intervencije na cjevovodu. U radionici vodovoda se napravi priru?ni alat koji se sastoji od priklju?nog sedla na koje je povezano crijevo i vodomjer.</p> <p>Vrijednost kvara se jednostavno o?itava na vodomjeru. Ovo je najprecizniji na?in odre?ivanja vrijednosti kvara i posebno je pogodna za vodovode koji ?esto imaju kvarove na istom vrsti cjevovoda.</p> <p>
</p> <h3 style="margin: 12pt 0cm 0.0001pt 36pt; text-align: justify; text-indent: -36pt; line-height: normal;"> Odre?ivanje vrijednosti kvara primjenom Greeley-eve formule</h3> <p>Za prora?un ovom metodom potrebno je poznavati podatke i pritisku u sistemu i o povr?ini popre?nog presjeka i obliku otvora kroz koji voda isti?e. Popre?ni presjek se naj?e?e ne mo?e ta?no izmjeriti te ga je potrebno procijeniti.</p> <p>Prema Greeley-u isticanje se ra?una formulom:</p> <p> Q_h= 67,947 x A x P^{1/2}</p> <p></p> <p></p> <p> Gdje je </p> <p>

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sans-serif;">"Q_{kv}- Isticanje kroz otvor u l/min, </p> <p>A ♦ povr?ina popre?nog presjeka otvora isticanja izra?en u cm², </p> <p>P ♦ Pritisak u mre?i na mjestu isticanja izra?en u barima</p> <p>Za kvarove koji se pojavljuju na spojevima i na zaptivkama ventila i slavina gornja formula se mno?i sa koeficijentom 0,8.</p> <p align="left">U slijede?e dvije tabele su prikazane vrijednosti gubitaka kroz razli?ite popre?ne presjeke u zavisnosti od pritiska i vrijednost kvarova iz kojih voda isti?e kap po kap.</p> <p> Za kvarove koji se pojavljuju na spojevima i na zaptivkama ventila i slavina gornja formula se mno?i sa koeficijentom 0,8.</p> <p> U slijede?e dvije tabele su prikazane vrijednosti gubitaka kroz razli?ite popre?ne presjeke u zavisnosti od pritiska i vrijednost kvarova iz kojih voda isti?e kap po kap.</p> <p style="text-align: center;"><strong style="font-size: 12pt;"> Tabela <strong style="font-size: 12pt;">. Koli?ine vode koje isti?u kroz otvore pri razli?itim vrijednostima pritiska</p> <div align="center"> <table style="width: 316px; margin-left: 4.65pt; border-collapse: collapse;" border="0" cellspacing="0" cellpadding="0"> <tr style="height: 30pt;"> <td style="width: 70pt; border: 1pt solid windowtext; padding: 0cm 5.4pt; height: 30pt;" width="93"> <p style="text-align: center;" align="center">Broja kapi u sekundi</p> </td> <td style="width: 59pt; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt; height: 30pt;" width="79"> <p style="text-align: center;" align="center">l/min</p> </td> <td style="width: 50pt; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt; height: 30pt;" width="67"> <p style="text-align: center;" align="center">I/dan</p> </td> <td style="width: 58pt; border-style: solid solid solid none; border-top-color: windowtext; border-right-color: windowtext; border-bottom-color: windowtext; border-top-width: 1pt; border-right-width: 1pt; border-bottom-width: 1pt; padding: 0cm 5.4pt; height: 30pt;" width="77"> <p style="text-align: center;" align="center">m³/god</p> </td> </tr> <tr style="height: 15pt;"> <td style="width: 70pt; border-style: none solid solid; border-right-color: windowtext; border-bottom-color: windowtext; border-left-color: windowtext; border-right-width: 1pt; border-bottom-width: 1pt; border-left-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="93"> <p style="text-align: center;" align="center">1</p> </td> <td style="width: 59pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-top-color: windowtext; border-top-width: 1pt; border-left-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" width="77">

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border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="79"> <p style="text-align: right;" align="right">0,023</p> </td> <td style="width: 50pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="67"> <p style="text-align: right;" align="right">32,71</p> </td> <td style="width: 58pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="77"> <p style="text-align: right;" align="right">11,94</p> </td> </tr> <tr style="height: 15pt;"> <td style="width: 70pt; border-style: none solid solid none; border-right-color: windowtext; border-bottom-color: windowtext; border-left-color: windowtext; border-right-width: 1pt; border-bottom-width: 1pt; border-left-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="93"> <p style="text-align: center;" align="center">2</p> </td> <td style="width: 59pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="67"> <p style="text-align: right;" align="right">0,045</p> </td> <td style="width: 50pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="79"> <p style="text-align: right;" align="right">65,42</p> </td> <td style="width: 58pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="77"> <p style="text-align: right;" align="right">23,88</p> </td> </tr> <tr style="height: 15pt;"> <td style="width: 70pt; border-style: none solid solid none; border-right-color: windowtext; border-bottom-color: windowtext; border-left-color: windowtext; border-right-width: 1pt; border-bottom-width: 1pt; border-left-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="93"> <p style="text-align: center;" align="center">3</p> </td> <td style="width: 59pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="79"> <p style="text-align: right;" align="right">0,068</p> </td> <td style="width: 50pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="67"> <p style="text-align: right;" align="right">98,13</p> </td> <td style="width: 58pt; border-style: none solid solid none; border-bottom-color: windowtext; border-bottom-width: 1pt; border-right-color: windowtext; border-right-width: 1pt; padding: 0cm 5.4pt; height: 15pt;" valign="bottom" nowrap="nowrap" width="77">

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