

A.4.1

(kg/h) - 80

bar	m/s	15 mm	20 mm	25 mm	32 mm	40 mm	50 mm	65 mm	80 mm	100 mm	125 mm	150 mm	200 mm	250 mm	300 mm
0.4	15	7	14	24	37	52	99	145	213	394	648	917	1606	2590	3678
	<b>25</b>	<b>10</b>	<b>25</b>	<b>40</b>	<b>62</b>	<b>92</b>	<b>162</b>	<b>265</b>	<b>384</b>	<b>675</b>	<b>972</b>	<b>1457</b>	<b>2806</b>	<b>4101</b>	<b>5936</b>
	40	17	35	64	102	142	265	403	576	1037	1670	2303	4318	6909	9500
0.7	15	7	16	25	40	59	109	166	250	431	680	1006	1708	2791	3852
	<b>25</b>	<b>12</b>	<b>25</b>	<b>45</b>	<b>72</b>	<b>100</b>	<b>182</b>	<b>287</b>	<b>430</b>	<b>716</b>	<b>1145</b>	<b>1575</b>	<b>2816</b>	<b>4629</b>	<b>6204</b>
	40	18	37	68	106	167	298	428	630	1108	1712	2417	4532	7251	10323
1	15	8	17	29	43	65	112	182	260	470	694	1020	1864	2814	4045
	<b>25</b>	<b>15</b>	<b>26</b>	<b>48</b>	<b>84</b>	<b>116</b>	<b>193</b>	<b>300</b>	<b>445</b>	<b>730</b>	<b>1160</b>	<b>1660</b>	<b>3099</b>	<b>4869</b>	<b>6751</b>
	40	19	39	71	112	172	311	465	640	1150	1800	2500	4815	7333	10370
2	15	12	25	45	70	100	182	280	410	715	1125	1580	2814	4545	6277
	<b>25</b>	<b>19</b>	<b>43</b>	<b>70</b>	<b>112</b>	<b>162</b>	<b>295</b>	<b>428</b>	<b>656</b>	<b>1215</b>	<b>1755</b>	<b>2520</b>	<b>4815</b>	<b>7425</b>	<b>10575</b>
	40	30	64	115	178	275	475	745	1010	1895	2925	4175	7678	11997	16796
3	15	16	37	60	93	127	245	385	535	925	1505	2040	3983	6217	8743
	<b>25</b>	<b>26</b>	<b>56</b>	<b>100</b>	<b>152</b>	<b>225</b>	<b>425</b>	<b>632</b>	<b>910</b>	<b>1580</b>	<b>2480</b>	<b>3440</b>	<b>6779</b>	<b>10269</b>	<b>14316</b>
	40	41	87	157	250	357	595	1025	1460	2540	4050	5940	10476	16470	22950
4	15	19	42	70	108	156	281	432	635	1166	1685	2460	4618	7121	10358
	<b>25</b>	<b>30</b>	<b>63</b>	<b>115</b>	<b>180</b>	<b>270</b>	<b>450</b>	<b>742</b>	<b>1080</b>	<b>1980</b>	<b>2925</b>	<b>4225</b>	<b>7866</b>	<b>12225</b>	<b>17304</b>
	40	49	116	197	295	456	796	1247	1825	3120	4940	7050	12661	19663	27816
5	15	22	49	87	128	187	352	526	770	1295	2105	2835	5548	8586	11947
	<b>25</b>	<b>36</b>	<b>81</b>	<b>135</b>	<b>211</b>	<b>308</b>	<b>548</b>	<b>885</b>	<b>1265</b>	<b>2110</b>	<b>3540</b>	<b>5150</b>	<b>8865</b>	<b>14268</b>	<b>20051</b>
	40	59	131	225	338	495	855	1350	1890	3510	5400	7870	13761	23205	32244
6	15	26	59	105	153	225	425	632	925	1555	2525	3400	6654	10297	14328
	<b>25</b>	<b>43</b>	<b>97</b>	<b>162</b>	<b>253</b>	<b>370</b>	<b>658</b>	<b>1065</b>	<b>1520</b>	<b>2530</b>	<b>4250</b>	<b>6175</b>	<b>10629</b>	<b>17108</b>	<b>24042</b>
	40	71	157	270	405	595	1025	1620	2270	4210	6475	9445	16515	27849	38697
7	15	29	63	110	165	260	445	705	952	1815	2765	3990	7390	12015	16096
	<b>25</b>	<b>49</b>	<b>114</b>	<b>190</b>	<b>288</b>	<b>450</b>	<b>785</b>	<b>1205</b>	<b>1750</b>	<b>3025</b>	<b>4815</b>	<b>6900</b>	<b>12288</b>	<b>19377</b>	<b>27080</b>
	40	76	177	303	455	690	1210	1865	2520	4585	7560	10880	19141	30978	43470
8	15	32	70	126	190	285	475	800	1125	1990	3025	4540	8042	12625	17728
	<b>25</b>	<b>54</b>	<b>122</b>	<b>205</b>	<b>320</b>	<b>465</b>	<b>810</b>	<b>1260</b>	<b>1870</b>	<b>3240</b>	<b>5220</b>	<b>7120</b>	<b>13140</b>	<b>21600</b>	<b>33210</b>
	40	84	192	327	510	730	1370	2065	3120	5135	8395	12470	21247	33669	46858
10	15	41	95	155	250	372	626	1012	1465	2495	3995	5860	9994	16172	22713
	<b>25</b>	<b>66</b>	<b>145</b>	<b>257</b>	<b>405</b>	<b>562</b>	<b>990</b>	<b>1530</b>	<b>2205</b>	<b>3825</b>	<b>6295</b>	<b>8995</b>	<b>15966</b>	<b>25860</b>	<b>35890</b>
	40	104	216	408	615	910	1635	2545	3600	6230	9880	14390	26621	41011	57560
14	15	50	121	205	310	465	810	1270	1870	3220	5215	7390	12921	20538	29016
	<b>25</b>	<b>85</b>	<b>195</b>	<b>331</b>	<b>520</b>	<b>740</b>	<b>1375</b>	<b>2080</b>	<b>3120</b>	<b>5200</b>	<b>8500</b>	<b>12560</b>	<b>21720</b>	<b>34139</b>	<b>47128</b>
	40	126	305	555	825	1210	2195	3425	4735	8510	13050	18630	35548	54883	76534

( )  
(Sch80)

80

	(DN)	15	20	25	32	40	50	65	80	100	125	150
(mm)	Sch40	15.8	21	26.6	35.1	40.9	52.5	62.7	77.9	102.3	128.2	154.1
	Sch80	13.8	18.9	24.3	32.5	38.1	49.2	59.0	73.7	97.2	122.3	146.4
	Sch160	11.7	15.6	20.7	29.5	34.0	42.8	53.9	66.6	87.3	109.5	131.8

$$W(\text{kg/h}) = \frac{0.002827 D^2 V}{\mu}$$

$$V(\text{m/s}) = \frac{W\mu}{0.002827 D^2}$$

D= (mm), V= (m/s),  $\mu$ = (m<sup>3</sup>/kg)

kg/h(KSD 3562 )

kg/cm <sup>2</sup>	m/s	(mm), 40																	
		15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500
0.4	15	9	16	25	43	58	96	149	210	360	552	785	1,376	2,131	3,055	3,826	4,997	6,323	7,858
	<b>25</b>	<b>15</b>	<b>26</b>	<b>42</b>	<b>72</b>	<b>97</b>	<b>159</b>	<b>249</b>	<b>350</b>	<b>600</b>	<b>920</b>	<b>1,308</b>	<b>2,293</b>	<b>3,551</b>	<b>5,091</b>	<b>6,377</b>	<b>8,328</b>	<b>10,539</b>	<b>13,097</b>
	40	24	42	68	116	156	255	399	560	961	1,471	2,093	3,668	5,682	8,146	10,203	13,325	16,862	20,956
0.6	15	10	18	29	49	66	108	169	237	407	623	887	1,554	2,408	3,452	4,324	5,647	7,146	8,880
	<b>25</b>	<b>17</b>	<b>30</b>	<b>48</b>	<b>82</b>	<b>110</b>	<b>180</b>	<b>282</b>	<b>395</b>	<b>678</b>	<b>1,039</b>	<b>1,478</b>	<b>2,591</b>	<b>4,013</b>	<b>5,753</b>	<b>7,206</b>	<b>9,411</b>	<b>11,909</b>	<b>14,801</b>
	40	27	48	77	131	176	288	450	633	1,086	1,663	2,365	4,145	6,421	9,205	11,530	15,058	19,055	23,681
1.0	15	12	22	35	60	80	131	205	288	494	757	1,077	1,887	2,923	4,191	5,249	6,855	8,675	10,781
	<b>25</b>	<b>20</b>	<b>36</b>	<b>58</b>	<b>99</b>	<b>134</b>	<b>219</b>	<b>342</b>	<b>480</b>	<b>824</b>	<b>1,261</b>	<b>1,795</b>	<b>3,145</b>	<b>4,872</b>	<b>6,985</b>	<b>8,749</b>	<b>11,425</b>	<b>14,458</b>	<b>17,968</b>
	40	33	58	93	159	214	350	547	768	1,318	2,018	2,871	5,032	7,795	11,176	13,998	18,280	23,133	28,749
1.6	15	16	28	45	77	103	169	264	371	637	975	1,387	2,432	3,767	5,400	6,764	8,833	11,178	13,891
	<b>25</b>	<b>26</b>	<b>46</b>	<b>75</b>	<b>128</b>	<b>172</b>	<b>282</b>	<b>440</b>	<b>619</b>	<b>1,061</b>	<b>1,625</b>	<b>2,312</b>	<b>4,053</b>	<b>6,278</b>	<b>9,000</b>	<b>11,273</b>	<b>14,721</b>	<b>18,630</b>	<b>23,152</b>
	40	42	74	120	204	275	451	705	990	1,698	2,601	3,700	6,484	10,044	14,400	18,036	23,554	29,807	37,043
2.0	15	18	32	51	88	118	193	302	424	727	1,113	1,584	2,776	4,300	6,165	7,722	10,084	12,762	15,860
	<b>25</b>	<b>30</b>	<b>53</b>	<b>86</b>	<b>146</b>	<b>197</b>	<b>322</b>	<b>503</b>	<b>706</b>	<b>1,212</b>	<b>1,856</b>	<b>2,640</b>	<b>4,627</b>	<b>7,167</b>	<b>10,275</b>	<b>12,870</b>	<b>16,807</b>	<b>21,269</b>	<b>26,433</b>
	40	48	85	137	233	314	515	805	1,130	1,939	2,969	4,224	7,403	11,467	16,440	20,592	26,892	34,031	42,292
3.0	15	24	42	67	114	154	252	394	554	950	1,455	2,070	3,627	5,619	8,056	10,090	13,177	16,676	20,724
	<b>25</b>	<b>39</b>	<b>69</b>	<b>112</b>	<b>191</b>	<b>257</b>	<b>420</b>	<b>657</b>	<b>923</b>	<b>1,583</b>	<b>2,425</b>	<b>3,450</b>	<b>6,046</b>	<b>9,365</b>	<b>13,427</b>	<b>16,817</b>	<b>21,962</b>	<b>27,793</b>	<b>34,540</b>
	40	63	111	179	305	411	672	1,051	1,477	2,533	3,880	5,520	9,673	14,985	21,483	26,908	35,140	44,469	55,264
4.0	15	29	51	82	140	189	309	483	678	1,163	1,782	2,535	4,442	6,882	9,866	12,357	16,138	20,422	25,379
	<b>25</b>	<b>48</b>	<b>85</b>	<b>137</b>	<b>234</b>	<b>315</b>	<b>515</b>	<b>805</b>	<b>1,130</b>	<b>1,939</b>	<b>2,970</b>	<b>4,225</b>	<b>7,404</b>	<b>11,469</b>	<b>16,443</b>	<b>20,595</b>	<b>26,896</b>	<b>34,036</b>	<b>42,299</b>
	40	77	136	219	374	503	823	1,287	1,808	3,102	4,751	6,759	11,846	18,351	26,309	32,953	43,034	54,458	67,678
5.0	15	34	61	98	167	225	368	576	809	1,388	2,126	3,025	5,301	8,212	11,773	14,746	19,257	24,369	30,285
	<b>25</b>	<b>57</b>	<b>101</b>	<b>164</b>	<b>279</b>	<b>375</b>	<b>614</b>	<b>960</b>	<b>1,349</b>	<b>2,314</b>	<b>3,544</b>	<b>5,041</b>	<b>8,835</b>	<b>13,686</b>	<b>19,621</b>	<b>24,577</b>	<b>32,095</b>	<b>40,616</b>	<b>50,476</b>
	40	92	162	262	446	600	982	1,536	2,158	3,702	5,670	8,066	14,136	21,898	31,394	39,322	51,352	64,985	80,761
6.0	15	40	70	113	193	259	424	663	932	1,599	2,449	3,484	6,105	9,457	13,558	16,982	22,178	28,065	34,878
	<b>25</b>	<b>66</b>	<b>117</b>	<b>188</b>	<b>321</b>	<b>432</b>	<b>707</b>	<b>1,106</b>	<b>1,553</b>	<b>2,665</b>	<b>4,081</b>	<b>5,806</b>	<b>10,175</b>	<b>15,762</b>	<b>22,597</b>	<b>28,304</b>	<b>36,963</b>	<b>46,775</b>	<b>58,131</b>
	40	106	187	301	513	692	1,131	1,769	2,485	4,264	6,530	9,289	16,280	25,219	36,155	45,286	59,140	74,841	93,009
7.0	15	45	80	129	219	295	483	755	1,061	1,821	2,788	3,966	6,951	10,768	15,438	19,337	25,252	31,956	39,714
	<b>25</b>	<b>75</b>	<b>133</b>	<b>215</b>	<b>365</b>	<b>492</b>	<b>805</b>	<b>1,259</b>	<b>1,768</b>	<b>3,034</b>	<b>4,647</b>	<b>6,611</b>	<b>11,586</b>	<b>17,947</b>	<b>25,730</b>	<b>32,228</b>	<b>42,087</b>	<b>53,260</b>	<b>66,190</b>
	40	120	212	343	585	787	1,288	2,015	2,830	4,855	7,435	10,577	18,537	28,716	41,168	51,564	67,339	85,216	105,904
8.0	15	50	89	144	245	330	540	844	1,186	2,035	3,117	4,434	7,771	12,037	17,257	21,615	28,228	35,722	44,394
	<b>25</b>	<b>84</b>	<b>148</b>	<b>240</b>	<b>408</b>	<b>550</b>	<b>900</b>	<b>1,407</b>	<b>1,977</b>	<b>3,392</b>	<b>5,195</b>	<b>7,390</b>	<b>12,951</b>	<b>20,062</b>	<b>28,762</b>	<b>36,025</b>	<b>47,046</b>	<b>59,536</b>	<b>73,989</b>
	40	134	237	384	654	880	1,440	2,252	3,163	5,427	8,311	11,824	20,722	32,099	46,019	57,641	75,274	95,258	118,383
10.0	15	61	108	174	297	400	654	1,022	1,436	2,463	3,772	5,366	9,405	14,569	20,887	26,161	34,165	43,235	53,731
	<b>25</b>	<b>102</b>	<b>180</b>	<b>290</b>	<b>494</b>	<b>666</b>	<b>1,089</b>	<b>1,704</b>	<b>2,393</b>	<b>4,105</b>	<b>6,287</b>	<b>8,944</b>	<b>15,675</b>	<b>24,282</b>	<b>34,811</b>	<b>43,602</b>	<b>56,941</b>	<b>72,058</b>	<b>89,551</b>
	40	163	287	464	791	1,065	1,743	2,726	3,828	6,568	10,059	14,310	25,080	38,851	55,698	69,764	91,106	115,293	143,281
12.0	15	72	126	204	348	469	767	1,199	1,684	2,890	4,425	6,296	11,034	17,092	24,504	30,692	40,081	50,722	63,035
	<b>25</b>	<b>119</b>	<b>211</b>	<b>340</b>	<b>580</b>	<b>781</b>	<b>1,278</b>	<b>1,999</b>	<b>2,807</b>	<b>4,816</b>	<b>7,376</b>	<b>10,493</b>	<b>18,389</b>	<b>28,487</b>	<b>40,840</b>	<b>51,153</b>	<b>66,802</b>	<b>84,537</b>	<b>105,059</b>
	40	191	337	545	928	1,250	2,045	3,198	4,491	7,706	11,801	16,789	29,423	45,579	65,343	81,845	106,884	135,259	168,094
14.0	15	82	145	234	399	538	880	1,376	1,932	3,315	5,077	7,222	12,657	19,607	28,109	35,207	45,978	58,185	72,309
	<b>25</b>	<b>137</b>	<b>242</b>	<b>391</b>	<b>665</b>	<b>896</b>	<b>1,466</b>	<b>2,293</b>	<b>3,220</b>	<b>5,525</b>	<b>8,461</b>	<b>12,037</b>	<b>21,095</b>	<b>32,678</b>	<b>46,848</b>	<b>58,679</b>	<b>76,631</b>	<b>96,974</b>	<b>120,516</b>
	40	219	387	625	1,064	1,434	2,346	3,668	5,152	8,839	13,538	19,259	33,752	52,284	74,957	93,886	122,609	155,159	192,825
16.0	15	93	164	265	451	607	993	1,553	2,181	3,742	5,731	8,154	14,290	22,136	31,735	39,749	51,910	65,691	81,638
	<b>25</b>	<b>154</b>	<b>273</b>	<b>441</b>	<b>751</b>	<b>1,012</b>	<b>1,655</b>	<b>2,588</b>	<b>3,635</b>	<b>6,237</b>	<b>9,552</b>	<b>13,589</b>	<b>23,816</b>	<b>36,893</b>	<b>52,892</b>	<b>66,249</b>	<b>86,516</b>	<b>109,484</b>	<b>136,063</b>
	40	247	437	706	1,202	1,619	2,648	4,141	5,817	9,980	15,284	21,743	38,106	59,029	84,627	105,998	138,426	175,175	217,701
25.0	15	140	248	401	683	919	1,504	2,352	3,304	5,669	8,681	12,350	21,644	33,529	48,069	60,208	78,627	99,501	123,656
	<b>25</b>	<b>234</b>	<b>413</b>	<b>668</b>	<b>1,138</b>	<b>1,532</b>	<b>2,507</b>	<b>3,920</b>	<b>5,506</b>	<b>9,448</b>	<b>14,469</b>	<b>20,584</b>	<b>36,074</b>	<b>55,882</b>	<b>80,115</b>	<b>100,346</b>	<b>131,045</b>	<b>165,834</b>	<b>206,093</b>
	40	374	661	1,069	1,820	2,452	4,012	6,273	8,810	15,116	23,150	32,934	57,719	89,411	128,183	160,554	209,672	265,335	329,748