

Project ref/no = NADRAZI PARDUBICE  
Client ref/no = SUDOP  
Address/notes 1 =  
Address/notes 2 =  
Address/notes 3 =  
Building ref/no =  
Hazard classification =  
System/design ref (MR/MF) = [MR] [Selected 24 most remotest heads]  
Installation ref/no = GARAZE  
Drawing(s) ref/no =  
Drawing(s) dates/issues =  
Reviewer/Insurance/Fire =  
Designer/Dept = Ing. Ondrej Krupka  
Comments 1 = Sprinkplan s.r.o.  
Comments 2 = projekty pozarnich sprinkleru  
Start X Y + building DXF = www.sprinkplan.cz  
Design area sq.m = 144  
Elbows welded above mm = 50  
Specific gravity = 1.00  
Node no for zero datum = 0  
Design authority = EN12845 Rules (latest) using Hazen-williams formula

Installer/designer = Program provided free by Alan Ashfield

The user name and contact details are stored  
in the file USERINFO.TXT which you can either  
delete and re-enter OR amend with NOTEPAD.

Telephone no(s) =  
FAX no(s) =  
Registration = 21848 from 09 únor 2021 [CE1926CC]  
Reference = krupk on NTB to Bullzip PDF Printer  
Data file = [From HV DPS2.dxf] last amended

All pages checked by . . . . .

Sprinklers operating = 24 out of 165 entered  
Area of operation = 145.40 sq.m  
Max area per head = 7.047 sq.m  
Min head density = 7.279 mm/min at node 332  
Min head pressure = 0.350 bars at node 147  
Max head pressure = 0.456 bars at node 232  
Max head height = 3.250 m  
Pipes = 204 + 55 with zero flow  
Min pipe size = 40 mm  
Max pressure drop = 0.293 bars in pipe 119 120  
Max pressure drop/metre = 19.29 mbar/m in pipe 118 119  
Max velocity = 3.70 m/s in pipe 118 119  
Hydrants / hoses reels = 0 L/min  
Volume of pipework = 1.352 cu.m  
Actual density of discharge = 7.88 mm/min over 6.071 sq.m  
Four most remote heads = 147 148 291 292

SOURCE DUTY = 1203.2 L/min at 2.223 bars [node 100]

#### OPERATING SPRINKLER HEADS AND HYDRANTS

Node no	Size mm	"K" factor	Flows Min	in Actual	L/min %	Area sq.m	Density Min	mm/min Actual	Pipe mm	MRH #	Height m	Pressures Min	Normal	Vel	bar Total
144	15.0	80.00	47.3	49.6	5	5.362	5.00	9.25	40		3.250	0.35	0.385		0.385
145	15.0	80.00	47.3	48.1	2	5.448	5.00	8.82	40		3.250	0.35	0.361		0.361
146	15.0	80.00	47.3	47.4	0	5.362	5.00	8.84	40		3.250	0.35	0.351		0.351
147	15.0	80.00	47.3	47.3	0	5.448	5.00	8.69	40	1	3.250	0.35	0.350		0.350
148	15.0	80.00	47.3	47.4	0	5.292	5.00	8.95	40	2	3.250	0.35	0.351		0.351
232	15.0	80.00	47.3	54.0	14	6.076	5.00	8.89	40		3.250	0.35	0.456		0.456
233	15.0	80.00	47.3	52.6	11	6.666	5.00	7.89	40		3.250	0.35	0.432		0.432
234	15.0	80.00	47.3	52.0	10	6.666	5.00	7.81	40		3.250	0.35	0.423		0.423
235	15.0	80.00	47.3	52.0	10	6.666	5.00	7.80	40		3.250	0.35	0.423		0.423
288	15.0	80.00	47.3	51.1	8	5.441	5.00	9.39	40		3.250	0.35	0.408		0.408
289	15.0	80.00	47.3	49.4	4	5.370	5.00	9.20	40		3.250	0.35	0.382		0.382
290	15.0	80.00	47.3	48.6	3	5.362	5.00	9.06	40		3.250	0.35	0.369		0.369
291	15.0	80.00	47.3	48.4	2	5.292	5.00	9.14	40	3	3.250	0.35	0.366		0.366
292	15.0	80.00	47.3	48.4	2	5.292	5.00	9.14	40	4	3.250	0.35	0.366		0.366
306	15.0	80.00	47.3	51.4	9	6.353	5.00	8.09	40		3.250	0.35	0.413		0.413
307	15.0	80.00	47.3	49.6	5	6.257	5.00	7.92	40		3.250	0.35	0.384		0.384
308	15.0	80.00	47.3	48.8	3	6.285	5.00	7.76	40		3.250	0.35	0.372		0.372
309	15.0	80.00	47.3	48.6	3	6.124	5.00	7.94	40		3.250	0.35	0.369		0.369
310	15.0	80.00	47.3	48.6	3	6.285	5.00	7.74	40		3.250	0.35	0.370		0.370
329	15.0	80.00	47.3	53.7	13	6.835	5.00	7.85	40		3.250	0.35	0.450		0.450

OPERATING SPRINKLER HEADS AND HYDRANTS

Node no	Size mm	"K" factor	Flows Min	in L/min Actual	+	A r e a sq.m	Density Min	mm/min Actual	Pipe mm	MRH #	Height m	P r e s s u r e s Min	N o r m a l v e l	b a r Total
330	15.0	80.00	47.3	52.0	10	6.971	5.00	7.47	40		3.250	0.35	0.423	0.423
331	15.0	80.00	47.3	51.4	9	6.835	5.00	7.52	40		3.250	0.35	0.413	0.413
332	15.0	80.00	47.3	51.3	8	7.047	5.00	7.28	40		3.250	0.35	0.411	0.411
333	15.0	80.00	47.3	51.4	9	6.668	5.00	7.70	40		3.250	0.35	0.412	0.412

HYDRAULICALLY SIGNIFICANT PIPES

N o d e s Start	End	S i z e mm	r e f	F l o w L/min	Length m	D i r e c t i o n <~>slope	F i t t i n g s +options	E q u i v l e n m	V e l m/s	Static m	Height end m	P r e s s u r e s Start	F r i c t	v e l	b a r E n d
100	110	100	DIN	1203.2	1.000	North			2.19		0.000	2.223	0.005		2.218
110	111	100	DIN	1203.2	2.650	Up	W	1.40	2.19	2.650	2.650	2.218	0.022		1.936
111	112	100	DIN	1203.2	2.127	@277	W	1.40	2.19		2.650	1.936	0.019		1.917
112	113	100	DIN	1203.2	17.577	@ 8	W	1.40	2.19		2.650	1.917	0.103		1.814
113	114	100	DIN	1203.2	2.715	@ 98	W	1.40	2.19		2.650	1.814	0.022		1.792
114	115	100	DIN	1203.2	0.326	@191	W	1.40	2.19		2.650	1.792	0.009		1.783
115	116	100	DIN	1203.2	2.350	Down	WSVBV	11.10	2.19	-2.350	0.300	1.783	0.073		1.940
116	117	100	DIN	1203.2	1.096	@ 97	W	1.40	2.19		0.300	1.940	0.013		1.927
117	118	100	DIN	1203.2	2.350	Up	WSVBV	11.10	2.19	2.350	2.650	1.927	0.073		1.624
118	119	80	DIN	1203.2	2.326	@188	W	1.10	3.70		2.650	1.624	0.066		1.558
119	120	80	DIN	1203.2	14.092	@ 98	W	1.10	3.70		2.650	1.558	0.293		1.264
120	121	80	DIN	1203.2	0.600	Up	W	1.10	3.70	0.600	3.250	1.264	0.033		1.173
121	122	80	DIN	1203.2	1.096	@187	W	1.10	3.70		3.250	1.173	0.042		1.130
122	123	80	DIN	1061.4	1.168	@190			3.26		3.250	1.130	0.018		1.113
123	124	80	DIN	907.4	2.326	@188			2.79		3.250	1.113	0.027		1.086
124	125	80	DIN	722.9	2.715	@188			2.22		3.250	1.086	0.020		1.066
125	126	80	DIN	546.2	2.263	@188			1.68		3.250	1.066	0.010		1.055
126	127	80	DIN	360.5	2.390	@188			1.11		3.250	1.055	0.005		1.050
127	128	80	DIN	171.9	1.294	@189			0.53		3.250	1.050	0.001		1.050
128	129	40	DIN	171.9	5.820	@ 98	E	1.20	2.09		3.250	1.050	0.105		0.945
129	130	40	DIN	171.9	0.707	@185	E	1.20	2.09		3.250	0.945	0.029		0.916
130	131	40	DIN	171.9	1.937	@ 98	E	1.20	2.09		3.250	0.916	0.047		0.869
131	132	40	DIN	171.9	2.978	@ 99			2.09		3.250	0.869	0.045		0.825
132	133	40	DIN	171.9	3.041	@ 99			2.09		3.250	0.825	0.046		0.779
133	134	40	DIN	171.9	2.969	@ 97			2.09		3.250	0.779	0.044		0.735
134	135	40	DIN	171.9	0.326	@101			2.09		3.250	0.735	0.005		0.730
135	136	40	DIN	171.9	0.320	South	E	1.20	2.09		3.250	0.730	0.023		0.707
136	137	40	DIN	171.9	0.653	@101	E	1.20	2.09		3.250	0.707	0.028		0.679
137	138	40	DIN	171.9	0.326	@ 11	E	1.20	2.09		3.250	0.679	0.023		0.656
138	139	40	DIN	171.9	2.000	@ 97	E	1.20	2.09		3.250	0.656	0.048		0.608
139	140	40	DIN	171.9	3.041	@ 99			2.09		3.250	0.608	0.046		0.563
140	141	40	DIN	171.9	2.905	@ 98			2.09		3.250	0.563	0.043		0.519
141	142	40	DIN	171.9	2.978	@ 99			2.09		3.250	0.519	0.045		0.475
142	143	40	DIN	171.9	2.969	@ 97			2.09		3.250	0.475	0.044		0.430
143	144	40	DIN	171.9	3.041	@ 99			2.09		3.250	0.430	0.046		0.385
144	145	40	DIN	122.3	2.978	@ 99			1.49		3.250	0.385	0.024		0.361
145	146	40	DIN	74.2	3.032	@ 97			0.90		3.250	0.361	0.010		0.351
146	147	40	DIN	26.8	2.978	@ 99			0.33		3.250	0.351	0.001		0.350
147	148	40	DIN	-20.6	2.969	@ 97			0.25		3.250	0.350	0.001		0.351
148	149	40	DIN	-67.9	3.041	@ 99			0.83		3.250	0.351	0.008		0.359
149	150	40	DIN	-67.9	2.978	@ 99			0.83		3.250	0.359	0.008		0.367
150	151	40	DIN	-67.9	3.032	@ 97			0.83		3.250	0.367	0.008		0.375
151	152	40	DIN	-67.9	2.978	@ 99			0.83		3.250	0.375	0.008		0.383
152	153	40	DIN	-67.9	2.978	@ 99			0.83		3.250	0.383	0.008		0.391
153	154	40	DIN	-67.9	2.905	@ 98			0.83		3.250	0.391	0.008		0.399
154	155	40	DIN	-67.9	0.389	@100			0.83		3.250	0.399	0.001		0.400
155	156	40	DIN	-67.9	4.842	@ 8	E	1.20	0.83		3.250	0.400	0.016		0.416
156	157	65	DIN	-53.8	1.747	@ 98	T	3.80	0.23		3.250	0.416	0.001		0.417
156	191	65	DIN	-14.1	0.264	@284	T	3.80	0.06		3.250	0.416	0.000		0.416
191	192	65	DIN	-71.4	0.898	@274			0.30		3.250	0.416	0.000		0.417
192	193	65	DIN	-132.7	13.450	@278			0.56		3.250	0.417	0.010		0.426
193	194	65	DIN	-132.7	1.358	@ 8	W	0.88	0.56		3.250	0.426	0.002		0.428
194	195	65	DIN	-132.7	0.516	@ 7			0.56		3.250	0.428	0.000		0.428
195	196	65	DIN	-166.6	0.590	@ 13			0.70		3.250	0.428	0.001		0.429
196	197	65	DIN	-191.3	2.127	@ 7			0.81		3.250	0.429	0.003		0.432
197	198	65	DIN	-295.7	2.326	@ 8			1.25		3.250	0.432	0.007		0.439
198	200	65	DIN	-141.8	0.264	@ 14			0.60		3.250	0.439	0.000		0.439
200	201	40	DIN	-141.8	0.202	@288	E	1.20	1.72		3.250	0.439	0.015		0.454
201	202	40	DIN	-141.8	2.199	@ 8	E	1.20	1.72		3.250	0.454	0.036		0.489
125	220	40	DIN	176.7	0.326	@101	T	2.40	2.15		3.250	1.066	0.043		1.023

HYDRAULICALLY SIGNIFICANT PIPES

N o d e s Start	End	S i z e mm	r e f	F l o w L/min	Length m	Direction <>~slope	Fittings +options	Equiv len m	Vel m/s	Static m	Height end m	P r e s s u r e s Start Frict v e l	E n d
220	221	40	DIN	176.7	2.969	@ 97			2.15		3.250	1.023 0.047	0.976
221	222	40	DIN	176.7	2.978	@ 99			2.15		3.250	0.976 0.047	0.929
222	223	40	DIN	176.7	3.032	@ 97			2.15		3.250	0.929 0.048	0.881
223	224	40	DIN	176.7	2.978	@ 99			2.15		3.250	0.881 0.047	0.834
224	225	40	DIN	176.7	3.041	@ 99			2.15		3.250	0.834 0.048	0.786
225	226	40	DIN	176.7	2.969	@ 97			2.15		3.250	0.786 0.047	0.739
226	227	40	DIN	176.7	3.041	@ 99			2.15		3.250	0.739 0.048	0.691
227	228	40	DIN	176.7	2.969	@ 97			2.15		3.250	0.691 0.047	0.645
228	229	40	DIN	176.7	3.041	@ 99			2.15		3.250	0.645 0.048	0.597
229	230	40	DIN	176.7	2.915	@ 99			2.15		3.250	0.597 0.046	0.551
230	231	40	DIN	176.7	3.485	@ 97			2.15		3.250	0.551 0.055	0.496
231	232	40	DIN	176.7	2.525	@ 99			2.15		3.250	0.496 0.040	0.456
232	233	40	DIN	122.7	3.041	@ 99			1.49		3.250	0.456 0.024	0.432
233	234	40	DIN	70.1	2.969	@ 97			0.85		3.250	0.432 0.008	0.423
234	235	40	DIN	18.1	3.041	@ 99			0.22		3.250	0.423 0.001	0.423
235	236	40	DIN	-33.9	1.484	@ 97			0.41		3.250	0.423 0.001	0.424
122	237	40	DIN	141.8	2.136	@ 99	T	2.40	1.72		3.250	1.130 0.048	1.083
237	238	40	DIN	141.8	3.557	@ 98			1.72		3.250	1.083 0.037	1.046
238	239	40	DIN	141.8	3.620	@ 98			1.72		3.250	1.046 0.038	1.008
239	240	40	DIN	141.8	2.453	@ 98			1.72		3.250	1.008 0.026	0.982
240	241	40	DIN	141.8	1.032	@ 7	E	1.20	1.72		3.250	0.982 0.023	0.959
241	242	40	DIN	141.8	0.580	@ 96	E	1.20	1.72		3.250	0.959 0.019	0.940
242	243	40	DIN	141.8	2.969	@ 97			1.72		3.250	0.940 0.031	0.909
243	244	40	DIN	141.8	3.041	@ 99			1.72		3.250	0.909 0.032	0.877
244	245	40	DIN	141.8	3.041	@ 99			1.72		3.250	0.877 0.032	0.845
245	246	40	DIN	141.8	2.905	@ 98			1.72		3.250	0.845 0.030	0.814
246	247	40	DIN	141.8	3.041	@ 99			1.72		3.250	0.814 0.032	0.783
247	248	40	DIN	141.8	2.969	@ 97			1.72		3.250	0.783 0.031	0.751
248	249	40	DIN	141.8	3.104	@ 98			1.72		3.250	0.751 0.033	0.719
249	250	40	DIN	141.8	1.946	@100			1.72		3.250	0.719 0.020	0.698
250	251	40	DIN	141.8	0.326	@ 11	E	1.20	1.72		3.250	0.698 0.016	0.682
251	252	40	DIN	141.8	1.032	@ 97	E	1.20	1.72		3.250	0.682 0.023	0.659
252	253	40	DIN	141.8	2.978	@ 99			1.72		3.250	0.659 0.031	0.628
253	254	40	DIN	141.8	2.905	@ 98			1.72		3.250	0.628 0.030	0.597
254	255	40	DIN	141.8	3.041	@ 99			1.72		3.250	0.597 0.032	0.566
255	256	40	DIN	141.8	1.484	@ 97			1.72		3.250	0.566 0.016	0.550
123	257	40	DIN	154.0	1.810	@ 98	T	2.40	1.87		3.250	1.113 0.051	1.061
257	258	40	DIN	154.0	2.978	@ 99			1.87		3.250	1.061 0.036	1.025
258	259	40	DIN	154.0	3.032	@ 97			1.87		3.250	1.025 0.037	0.988
259	260	40	DIN	154.0	2.978	@ 99			1.87		3.250	0.988 0.036	0.951
260	261	40	DIN	154.0	3.041	@ 99			1.87		3.250	0.951 0.037	0.914
261	262	40	DIN	154.0	2.969	@ 97			1.87		3.250	0.914 0.036	0.878
262	263	40	DIN	154.0	2.978	@ 99			1.87		3.250	0.878 0.036	0.842
263	264	40	DIN	154.0	3.041	@ 99			1.87		3.250	0.842 0.037	0.805
264	265	40	DIN	154.0	2.969	@ 97			1.87		3.250	0.805 0.036	0.768
265	266	40	DIN	154.0	2.978	@ 99			1.87		3.250	0.768 0.036	0.732
266	267	40	DIN	154.0	2.969	@ 97			1.87		3.250	0.732 0.036	0.696
267	268	40	DIN	154.0	3.104	@ 98			1.87		3.250	0.696 0.038	0.658
268	269	40	DIN	154.0	2.915	@ 99			1.87		3.250	0.658 0.036	0.622
269	270	40	DIN	154.0	3.032	@ 97			1.87		3.250	0.622 0.037	0.585
270	271	40	DIN	154.0	3.041	@ 99			1.87		3.250	0.585 0.037	0.548
271	272	40	DIN	154.0	3.041	@ 99			1.87		3.250	0.548 0.037	0.511
272	273	40	DIN	154.0	1.358	@ 98			1.87		3.250	0.511 0.017	0.494
198	275	40	DIN	-154.0	0.771	@275	T	2.40	1.87		3.250	0.439 0.039	0.478
275	273	40	DIN	-154.0	1.358	@278			1.87		3.250	0.478 0.017	0.494
127	277	40	DIN	188.6	0.320	East	T	2.40	2.29		3.250	1.050 0.048	1.002
277	278	40	DIN	188.6	2.978	@ 99			2.29		3.250	1.002 0.053	0.949
278	279	40	DIN	188.6	2.978	@ 99			2.29		3.250	0.949 0.053	0.896
279	280	40	DIN	188.6	2.969	@ 97			2.29		3.250	0.896 0.053	0.843
280	281	40	DIN	188.6	3.041	@ 99			2.29		3.250	0.843 0.054	0.789
281	282	40	DIN	188.6	3.041	@ 99			2.29		3.250	0.789 0.054	0.735
282	283	40	DIN	188.6	2.969	@ 97			2.29		3.250	0.735 0.053	0.683
283	284	40	DIN	188.6	3.041	@ 99			2.29		3.250	0.683 0.054	0.628
284	285	40	DIN	188.6	2.969	@ 97			2.29		3.250	0.628 0.053	0.576
285	286	40	DIN	188.6	2.978	@ 99			2.29		3.250	0.576 0.053	0.523
286	287	40	DIN	188.6	2.905	@ 98			2.29		3.250	0.523 0.052	0.471
287	288	40	DIN	188.6	3.557	@ 98			2.29		3.250	0.471 0.063	0.408
288	289	40	DIN	137.5	2.652	@ 98			1.67		3.250	0.408 0.026	0.382
289	290	40	DIN	88.1	2.978	@ 99			1.07		3.250	0.382 0.013	0.369
290	291	40	DIN	39.5	3.032	@ 97			0.48		3.250	0.369 0.003	0.366

HYDRAULICALLY SIGNIFICANT PIPES

N o d e s Start	End	S i z e mm	r e f	F l o w L/min	Length m	Direction <~>slope	Fittings +options	Equiv len m	Vel m/s	Static m	Height end m	P r e s s u r e s Start Frict v e l	E n d
291	292	40	DIN	-8.9	2.978	@ 99			0.11		3.250	0.366 0.000	0.366
292	293	40	DIN	-57.3	2.978	@ 99			0.70		3.250	0.366 0.006	0.372
293	294	40	DIN	-57.3	1.484	@ 97			0.70		3.250	0.372 0.003	0.375
126	295	40	DIN	185.7	1.810	@ 98	T	2.40	2.26		3.250	1.055 0.073	0.983
295	296	40	DIN	185.7	2.969	@ 97			2.26		3.250	0.983 0.051	0.931
296	297	40	DIN	185.7	3.041	@ 99			2.26		3.250	0.931 0.053	0.879
297	298	40	DIN	185.7	2.978	@ 99			2.26		3.250	0.879 0.051	0.827
298	299	40	DIN	185.7	3.032	@ 97			2.26		3.250	0.827 0.052	0.775
299	300	40	DIN	185.7	2.978	@ 99			2.26		3.250	0.775 0.051	0.723
300	301	40	DIN	185.7	2.969	@ 97			2.26		3.250	0.723 0.051	0.672
301	302	40	DIN	185.7	3.041	@ 99			2.26		3.250	0.672 0.053	0.620
302	303	40	DIN	185.7	2.978	@ 99			2.26		3.250	0.620 0.051	0.568
303	304	40	DIN	185.7	2.969	@ 97			2.26		3.250	0.568 0.051	0.517
304	305	40	DIN	185.7	2.978	@ 99			2.26		3.250	0.517 0.051	0.465
305	306	40	DIN	185.7	3.032	@ 97			2.26		3.250	0.465 0.052	0.413
306	307	40	DIN	134.3	3.041	@ 99			1.63		3.250	0.413 0.029	0.384
307	308	40	DIN	84.7	3.041	@ 99			1.03		3.250	0.384 0.012	0.372
308	309	40	DIN	35.9	2.978	@ 99			0.44		3.250	0.372 0.002	0.369
309	310	40	DIN	-12.7	2.969	@ 97			0.15		3.250	0.369 0.000	0.370
310	311	40	DIN	-61.3	1.548	@ 97			0.74		3.250	0.370 0.003	0.373
202	313	40	DIN	-141.8	1.883	@280	T	2.40	1.72		3.250	0.489 0.045	0.534
313	256	40	DIN	-141.8	1.484	@277			1.72		3.250	0.534 0.016	0.550
197	315	40	DIN	75.3	0.842	@279	T	2.40	0.91		3.250	0.432 0.011	0.421
315	316	40	DIN	75.3	1.350	@275			0.91		3.250	0.421 0.004	0.417
124	318	40	DIN	184.5	1.810	@ 98	T	2.40	2.24		3.250	1.086 0.072	1.014
318	319	40	DIN	184.5	2.978	@ 99			2.24		3.250	1.014 0.051	0.963
319	320	40	DIN	184.5	2.969	@ 97			2.24		3.250	0.963 0.051	0.913
320	321	40	DIN	184.5	3.041	@ 99			2.24		3.250	0.913 0.052	0.861
321	322	40	DIN	184.5	2.978	@ 99			2.24		3.250	0.861 0.051	0.810
322	323	40	DIN	184.5	3.032	@ 97			2.24		3.250	0.810 0.052	0.758
323	324	40	DIN	184.5	2.978	@ 99			2.24		3.250	0.758 0.051	0.707
324	325	40	DIN	184.5	3.104	@ 98			2.24		3.250	0.707 0.053	0.654
325	326	40	DIN	184.5	2.905	@ 98			2.24		3.250	0.654 0.050	0.605
326	327	40	DIN	184.5	3.041	@ 99			2.24		3.250	0.605 0.052	0.553
327	328	40	DIN	184.5	2.905	@ 98			2.24		3.250	0.553 0.050	0.503
328	329	40	DIN	184.5	3.104	@ 98			2.24		3.250	0.503 0.053	0.450
329	330	40	DIN	130.8	2.978	@ 99			1.59		3.250	0.450 0.027	0.423
330	331	40	DIN	78.8	2.969	@ 97			0.96		3.250	0.423 0.011	0.413
331	332	40	DIN	27.4	3.041	@ 99			0.33		3.250	0.413 0.002	0.411
332	333	40	DIN	-23.9	2.978	@ 99			0.29		3.250	0.411 0.001	0.412
333	316	40	DIN	-75.3	1.358	@ 98			0.91		3.250	0.412 0.004	0.417
157	335	50	DIN	-53.8	2.453	@ 8	T	2.90	0.41		3.250	0.417 0.003	0.420
335	336	50	DIN	-29.2	2.136	@ 9			0.22		3.250	0.420 0.000	0.420
336	337	40	DIN	-29.2	2.191	@277	E	1.20	0.35		3.250	0.420 0.002	0.422
337	338	40	DIN	-29.2	3.041	@279			0.35		3.250	0.422 0.002	0.424
338	339	40	DIN	-29.2	2.978	@279			0.35		3.250	0.424 0.002	0.426
339	340	40	DIN	-29.2	3.032	@277			0.35		3.250	0.426 0.002	0.427
340	341	40	DIN	-29.2	1.810	@278			0.35		3.250	0.427 0.001	0.428
192	343	40	DIN	61.3	0.384	South	T	2.40	0.74		3.250	0.417 0.006	0.410
343	344	40	DIN	61.3	0.516	@277	E	1.20	0.74		3.250	0.410 0.004	0.407
344	345	40	DIN	61.3	3.104	@278			0.74		3.250	0.407 0.007	0.400
345	346	40	DIN	61.3	2.915	@279			0.74		3.250	0.400 0.006	0.393
346	347	40	DIN	61.3	2.969	@277			0.74		3.250	0.393 0.007	0.387
347	348	40	DIN	61.3	1.557	@280			0.74		3.250	0.387 0.003	0.383
348	349	40	DIN	61.3	2.969	@277			0.74		3.250	0.383 0.007	0.377
349	311	40	DIN	61.3	1.494	@280			0.74		3.250	0.377 0.003	0.373
191	352	40	DIN	57.3	1.294	@189	T	2.40	0.70		3.250	0.416 0.007	0.409
352	353	40	DIN	57.3	1.548	@187			0.70		3.250	0.409 0.003	0.406
353	354	40	DIN	57.3	2.915	@279	E	1.20	0.70		3.250	0.406 0.008	0.398
354	355	40	DIN	57.3	2.969	@277			0.70		3.250	0.398 0.006	0.392
355	356	40	DIN	57.3	3.041	@279			0.70		3.250	0.392 0.006	0.386
356	357	40	DIN	57.3	4.399	@278			0.70		3.250	0.386 0.009	0.378
357	294	40	DIN	57.3	1.548	@277			0.70		3.250	0.378 0.003	0.375
195	365	40	DIN	33.9	2.073	@279	T	2.40	0.41		3.250	0.428 0.003	0.425
365	236	40	DIN	33.9	1.484	@277			0.41		3.250	0.425 0.001	0.424
197	368	40	DIN	29.2	1.557	@100	T	2.40	0.35		3.250	0.432 0.002	0.429
368	341	40	DIN	29.2	1.747	@ 98			0.35		3.250	0.429 0.001	0.428
335	370	40	DIN	-24.6	1.747	@278	T	2.40	0.30		3.250	0.420 0.002	0.422
370	371	40	DIN	-24.6	3.104	@278			0.30		3.250	0.422 0.001	0.423
371	372	40	DIN	-24.6	2.905	@278			0.30		3.250	0.423 0.001	0.424

HYDRAULICALLY SIGNIFICANT PIPES

N o d e s	S i z e	F l o w	Length	Direction	Fittings	Equiv	Vel	Static	Height	P r e s s u r e s	b a r
Start	End	mm ref	m	<>~slope	+options	len m	m/s	m	end m	Start Frict v e l	E n d
372	373	40 DIN	-24.6	3.041 @279			0.30		3.250	0.424 0.001	0.425
373	374	40 DIN	-24.6	1.231 @279			0.30		3.250	0.425 0.001	0.426
196	376	40 DIN	24.6	3.041 @ 99	T	2.40	0.30		3.250	0.429 0.002	0.426
376	374	40 DIN	24.6	1.223 @ 96			0.30		3.250	0.426 0.001	0.426

KEY TO FITTINGS AND PIPEWORK QUANTITIES (Above pipes only)

E = Screwed elbow, W = welded elbow, H = 45deg elbow, T = Branch tee/cross, J = Through tee  
GV = Gate valve, SV = Swinging valve, MV = Mushroom valve, BV = Butterfly valve, GL = Globe valve

DIN = DIN 2440/2458 "C"wet=120 "C"dry=100(d) "C"nfpa=120 Total = 531.18 m  
 Sizes = 40 50 65 80 100 mm  
 Bores = 41.80 53.00 70.90 83.10 107.90 mm  
 Lengths = 440.59 4.59 23.54 30.27 32.19 m

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For more information about AACALC7, please visit [www.freehc.net](http://www.freehc.net)