

Table for PP



Basis: DVS data sheets 2207, 2208 - State 2017

Field of application: **4000 / 4001 / 4002**

1 bar on manometer: **23** N (Effective surface of cylinder: 236 mm² / 0,37 inch²)

The heating element temperature is 210° C ± 10° C / 410° F ± 18° F.

The change-over time should be kept as low as possible.

The joining pressure build-up time should be recognized as maximum value and may be overrun by up to 50%.

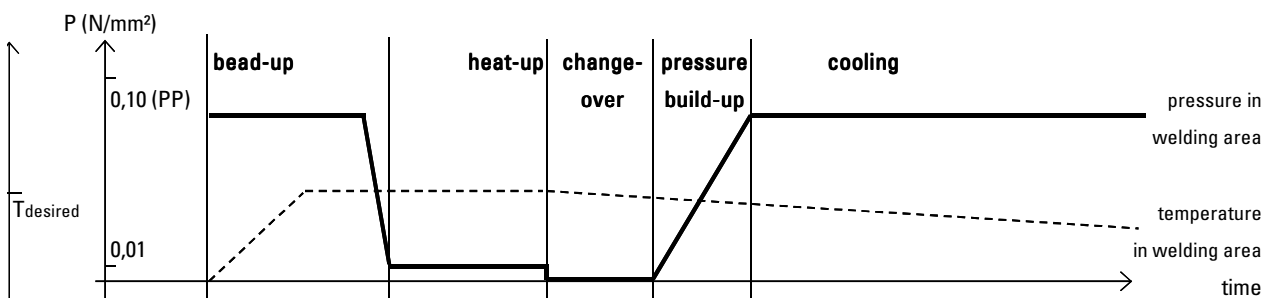
You must add the motion pressure of the welding machine to the indicated bead-up and welding pressure in each case!

The maximum pressure of the welding machine is to be observed.

❶ These cooling times are only valid under the following conditions:

- Welding connection is produced under workshop conditions
- Removal from the welding machine and temporary storage until complete cooling time elapses only cause minor strain for the welding connection

All information without guarantee



| pipe wall (s) | SDR degree | bead-up pressure [bar] | circular bead height min. [mm] | heat-up time [min:s] | max. change-over time [s] | pressure build-up time [s] | welding pressure [bar] | cooling time for ambient temperature | | | special cooling time ❶ [min:s] |
|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| DA 90 | | | | | | | | | | | |
| 2,2 | 41 | 3 | 0,5 | 00:26 | 5 | 6 | 3 | 04:00 | 05:00 | 06:30 | 03:30 |
| 2,8 | 33 | 4 | 0,5 | 00:33 | 5 | 6 | 4 | 04:00 | 05:00 | 06:30 | 03:30 |
| 3,5 | 26 | 5 | 0,5 | 00:41 | 5 | 6 | 5 | 04:00 | 05:00 | 06:30 | 03:30 |
| 5,1 | 17,6 | 6 | 0,5 | 01:00 | 5 | 6 | 6 | 04:29 | 05:36 | 07:13 | 03:52 |
| 5,4 | 17 | 7 | 0,5 | 01:03 | 5 | 6 | 7 | 04:43 | 05:54 | 07:35 | 04:02 |
| 8,2 | 11 | 10 | 1 | 01:34 | 6 | 8 | 10 | 06:50 | 08:35 | 10:56 | 05:43 |
| 10,1 | 9 | 12 | 1 | 01:54 | 7 | 9 | 12 | 08:10 | 10:17 | 13:13 | 06:52 |
| 12,3 | 7,4 | 14 | 1 | 02:18 | 7 | 11 | 14 | 09:42 | 12:15 | 15:52 | 08:10 |
| 15,0 | 6 | 16 | 1 | 02:45 | 8 | 14 | 16 | 11:26 | 14:34 | 19:09 | 09:43 |
| 18,1 | 5 | 18 | 1 | 03:17 | 9 | 16 | 18 | 13:25 | 17:14 | 22:54 | 11:29 |
| DA 110 | | | | | | | | | | | |
| 2,7 | 41 | 4 | 0,5 | 00:32 | 5 | 6 | 4 | 04:00 | 05:00 | 06:30 | 03:30 |
| 3,4 | 33 | 5 | 0,5 | 00:40 | 5 | 6 | 5 | 04:00 | 05:00 | 06:30 | 03:30 |
| 4,2 | 26 | 7 | 0,5 | 00:49 | 5 | 6 | 7 | 04:00 | 05:00 | 06:30 | 03:30 |
| 6,3 | 17,6 | 9 | 0,5 | 01:13 | 6 | 7 | 9 | 05:26 | 06:48 | 08:40 | 04:35 |
| 6,6 | 17 | 10 | 0,5 | 01:17 | 6 | 7 | 10 | 05:41 | 07:06 | 09:01 | 04:46 |
| 10,0 | 11 | 14 | 1 | 01:53 | 7 | 9 | 14 | 08:06 | 10:12 | 13:06 | 06:48 |
| 12,3 | 9 | 17 | 1 | 02:18 | 7 | 11 | 17 | 09:42 | 12:15 | 15:52 | 08:10 |
| 15,1 | 7,4 | 20 | 1 | 02:46 | 8 | 14 | 20 | 11:30 | 14:39 | 19:16 | 09:46 |
| 18,3 | 6 | 23 | 1 | 03:19 | 9 | 16 | 23 | 13:33 | 17:24 | 23:09 | 11:36 |
| 22,1 | 5 | 27 | 1,5 | 03:55 | 10 | 19 | 27 | 16:13 | 20:39 | 27:33 | 13:46 |

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Basis: DVS data sheets 2207, 2208 - State 2017

Field of application: **4000 / 4001 / 4002**

1 bar on manometer: **23** N (Effective surface of cylinder: 236 mm² / 0,37 inch²)

The heating element temperature is 210° C ± 10° C / 410° F ± 18° F.

The change-over time should be kept as low as possible.

The joining pressure build-up time should be recognized as maximum value and may be overrun by up to 50%.

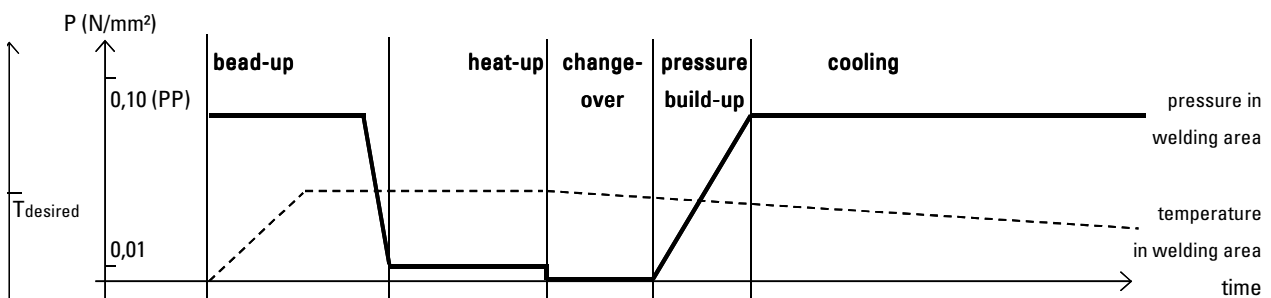
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| pipe wall (s) | SDR degree | bead-up pressure [bar] | circular bead height min. [mm] | heat-up time [min:s] | max. change-over time [s] | pressure build-up time [s] | welding pressure [bar] | cooling time for ambient temperature | | | special cooling time ❶ [min:s] |
|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| DA 125 | | | | | | | | | | | |
| 3,1 | 41 | 6 | 0,5 | 00:37 | 5 | 6 | 6 | 04:00 | 05:00 | 06:30 | 03:30 |
| 3,9 | 33 | 7 | 0,5 | 00:46 | 5 | 6 | 7 | 04:00 | 05:00 | 06:30 | 03:30 |
| 4,8 | 26 | 8 | 0,5 | 00:56 | 5 | 6 | 8 | 04:14 | 05:18 | 06:52 | 03:41 |
| 7,1 | 17,6 | 12 | 1 | 01:22 | 6 | 7 | 12 | 06:04 | 07:35 | 09:37 | 05:04 |
| 7,4 | 17 | 12 | 1 | 01:25 | 6 | 7 | 12 | 06:17 | 07:52 | 09:59 | 05:14 |
| 11,4 | 11 | 18 | 1 | 02:09 | 7 | 11 | 18 | 09:05 | 11:28 | 14:47 | 07:38 |
| 14,0 | 9 | 22 | 1 | 02:35 | 8 | 13 | 22 | 10:47 | 13:43 | 17:56 | 09:09 |
| 17,1 | 7,4 | 26 | 1 | 03:07 | 8 | 15 | 26 | 12:47 | 16:22 | 21:42 | 10:55 |
| 20,8 | 6 | 30 | 1,5 | 03:43 | 10 | 18 | 30 | 15:17 | 19:33 | 26:03 | 13:02 |
| 25,1 | 5 | 35 | 1,5 | 04:23 | 11 | 21 | 35 | 18:21 | 23:14 | 30:58 | 15:29 |
| DA 140 | | | | | | | | | | | |
| 3,5 | 41 | 7 | 0,5 | 00:41 | 5 | 6 | 7 | 04:00 | 05:00 | 06:30 | 03:30 |
| 4,3 | 33 | 8 | 0,5 | 00:51 | 5 | 6 | 8 | 04:00 | 05:00 | 06:30 | 03:30 |
| 5,4 | 26 | 10 | 0,5 | 01:03 | 5 | 6 | 10 | 04:43 | 05:54 | 07:35 | 04:02 |
| 8,0 | 17,6 | 15 | 1 | 01:32 | 6 | 8 | 15 | 06:42 | 08:24 | 10:42 | 05:36 |
| 8,3 | 17 | 15 | 1 | 01:35 | 6 | 8 | 15 | 06:55 | 08:40 | 11:04 | 05:47 |
| 12,7 | 11 | 23 | 1 | 02:22 | 7 | 12 | 23 | 09:57 | 12:36 | 16:21 | 08:24 |
| 15,7 | 9 | 27 | 1 | 02:53 | 8 | 14 | 27 | 11:53 | 15:10 | 20:00 | 10:07 |
| 19,2 | 7,4 | 32 | 1,5 | 03:28 | 9 | 17 | 32 | 14:09 | 18:10 | 24:14 | 12:07 |
| 23,3 | 6 | 38 | 1,5 | 04:06 | 10 | 20 | 38 | 17:04 | 21:41 | 28:55 | 14:27 |
| 28,1 | 5 | 43 | 2 | 04:48 | 12 | 24 | 43 | 20:32 | 25:55 | 34:29 | 17:20 |

Table for PP



Basis: DVS data sheets 2207, 2208 - State 2017

Field of application: **4000 / 4001 / 4002**

1 bar on manometer: **23** N (Effective surface of cylinder: 236 mm² / 0,37 inch²)

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The change-over time should be kept as low as possible.

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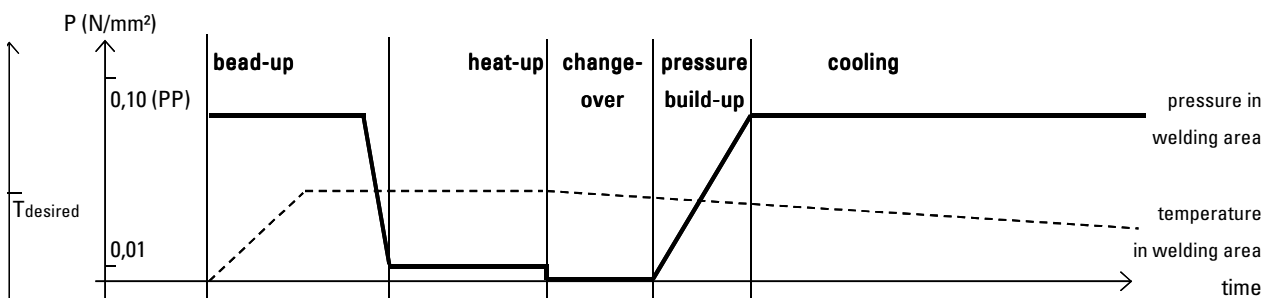
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| pipe wall (s) | SDR degree | bead-up pressure [bar] | circular bead height min. [mm] | heat-up time [min:s] | max. change-over time [s] | pressure build-up time [s] | welding pressure [bar] | cooling time for ambient temperature | | | special cooling time 1 [min:s] |
|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| DA 160 | | | | | | | | | | | |
| 4,0 | 41 | 9 | 0,5 | 00:47 | 5 | 6 | 9 | 04:00 | 05:00 | 06:30 | 03:30 |
| 4,9 | 33 | 11 | 0,5 | 00:57 | 5 | 6 | 11 | 04:19 | 05:24 | 06:59 | 03:44 |
| 6,2 | 26 | 14 | 0,5 | 01:12 | 6 | 7 | 14 | 05:22 | 06:42 | 08:32 | 04:31 |
| 9,1 | 17,6 | 19 | 1 | 01:44 | 6 | 9 | 19 | 07:28 | 09:23 | 12:01 | 06:16 |
| 9,5 | 17 | 20 | 1 | 01:48 | 6 | 9 | 20 | 07:45 | 09:45 | 12:30 | 06:30 |
| 14,6 | 11 | 29 | 1 | 02:41 | 8 | 13 | 29 | 11:10 | 14:14 | 18:39 | 09:29 |
| 17,9 | 9 | 35 | 1 | 03:15 | 9 | 16 | 35 | 13:18 | 17:03 | 22:40 | 11:22 |
| 21,9 | 7,4 | 42 | 1,5 | 03:53 | 10 | 19 | 42 | 16:04 | 20:29 | 27:19 | 13:39 |
| 26,6 | 6 | 49 | 2 | 04:36 | 11 | 23 | 49 | 19:26 | 24:33 | 32:43 | 16:23 |
| 32,1 | 5 | 57 | 2 | 05:21 | 13 | 28 | 57 | 23:26 | 29:33 | 39:13 | 19:53 |
| DA 180 | | | | | | | | | | | |
| 4,4 | 41 | 11 | 0,5 | 00:52 | 5 | 6 | 11 | 04:00 | 05:00 | 06:30 | 03:30 |
| 5,5 | 33 | 14 | 0,5 | 01:04 | 5 | 6 | 14 | 04:48 | 06:00 | 07:42 | 04:06 |
| 6,9 | 26 | 17 | 0,5 | 01:20 | 6 | 7 | 17 | 05:55 | 07:24 | 09:23 | 04:56 |
| 10,2 | 17,6 | 24 | 1 | 01:56 | 7 | 10 | 24 | 08:14 | 10:23 | 13:20 | 06:55 |
| 10,7 | 17 | 25 | 1 | 02:01 | 7 | 10 | 25 | 08:35 | 10:50 | 13:56 | 07:13 |
| 16,4 | 11 | 37 | 1 | 03:00 | 8 | 15 | 37 | 12:20 | 15:46 | 20:51 | 10:31 |
| 20,1 | 9 | 44 | 1,5 | 03:36 | 9 | 18 | 44 | 14:47 | 18:57 | 25:15 | 12:38 |
| 24,6 | 7,4 | 53 | 1,5 | 04:18 | 11 | 21 | 53 | 18:00 | 22:48 | 30:24 | 15:12 |
| 29,0 | 6 | 60 | 2 | 04:56 | 12 | 25 | 60 | 21:11 | 26:44 | 35:33 | 17:55 |
| 36,1 | 5 | 71 | 2 | 05:55 | 14 | 31 | 71 | 26:21 | 33:11 | 43:56 | 22:26 |

Table for PP



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Field of application: **4000 / 4001 / 4002**

1 bar on manometer: **23** N (Effective surface of cylinder: 236 mm² / 0,37 inch²)

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The change-over time should be kept as low as possible.

The joining pressure build-up time should be recognized as maximum value and may be overrun by up to 50%.

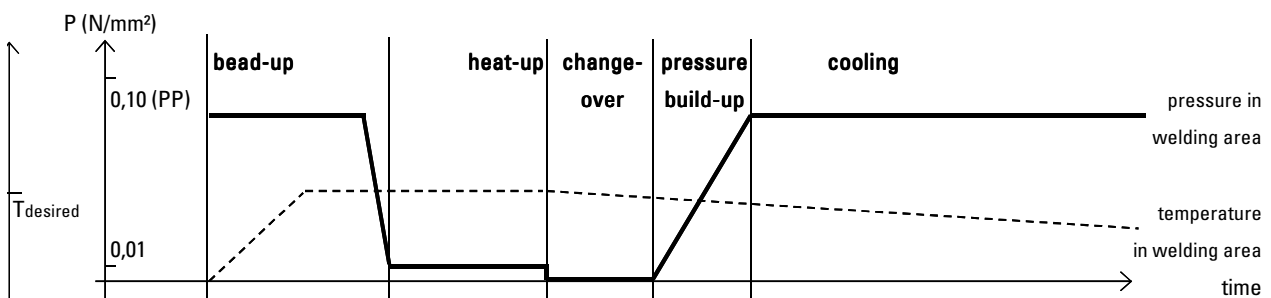
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| pipe wall (s) | SDR degree | bead-up pressure [bar] | circular bead height min. [mm] | heat-up time [min:s] | max. change-over time [s] | pressure build-up time [s] | welding pressure [bar] | cooling time for ambient temperature | | | special cooling time 1 [min:s] |
|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| [mm] | | | | | | | | | | | |
| DA 200 | | | | | | | | | | | |
| 4,9 | 41 | 14 | 0,5 | 00:57 | 5 | 6 | 14 | 04:19 | 05:24 | 06:59 | 03:44 |
| 6,2 | 33 | 17 | 0,5 | 01:12 | 6 | 7 | 17 | 05:22 | 06:42 | 08:32 | 04:31 |
| 7,7 | 26 | 21 | 1 | 01:29 | 6 | 8 | 21 | 06:29 | 08:08 | 10:20 | 05:25 |
| 11,4 | 17,6 | 30 | 1 | 02:09 | 7 | 11 | 30 | 09:05 | 11:28 | 14:47 | 07:38 |
| 11,9 | 17 | 31 | 1 | 02:14 | 7 | 11 | 31 | 09:26 | 11:55 | 15:23 | 07:56 |
| 18,2 | 11 | 46 | 1 | 03:18 | 9 | 16 | 46 | 13:29 | 17:19 | 23:02 | 11:33 |
| 22,4 | 9 | 55 | 1,5 | 03:58 | 10 | 19 | 55 | 16:26 | 20:55 | 27:53 | 13:57 |
| 27,4 | 7,4 | 65 | 2 | 04:43 | 11 | 23 | 65 | 20:01 | 25:16 | 33:39 | 16:53 |
| 33,2 | 6 | 76 | 2 | 05:31 | 13 | 29 | 76 | 24:14 | 30:33 | 40:31 | 20:35 |
| DA 225 | | | | | | | | | | | |
| 5,5 | 41 | 17 | 0,5 | 01:04 | 5 | 6 | 17 | 04:48 | 06:00 | 07:42 | 04:06 |
| 6,9 | 33 | 21 | 0,5 | 01:20 | 6 | 7 | 21 | 05:55 | 07:24 | 09:23 | 04:56 |
| 8,6 | 26 | 26 | 1 | 01:38 | 6 | 8 | 26 | 07:07 | 08:56 | 11:25 | 05:58 |
| 12,8 | 17,6 | 38 | 1 | 02:23 | 7 | 12 | 38 | 10:01 | 12:41 | 16:28 | 08:27 |
| 13,4 | 17 | 39 | 1 | 02:29 | 7 | 12 | 39 | 10:24 | 13:12 | 17:12 | 08:48 |
| 20,5 | 11 | 58 | 1,5 | 03:40 | 9 | 18 | 58 | 15:04 | 19:17 | 25:43 | 12:51 |
| 25,2 | 9 | 69 | 1,5 | 04:24 | 11 | 21 | 69 | 18:26 | 23:19 | 31:05 | 15:33 |
| 30,8 | 7,4 | 82 | 2 | 05:11 | 12 | 26 | 82 | 22:29 | 28:22 | 37:40 | 19:03 |
| 37,4 | 6 | 96 | 2,5 | 06:05 | 14 | 32 | 96 | 27:17 | 34:22 | 45:30 | 23:15 |

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Basis: DVS data sheets 2207, 2208 - State 2017

Field of application: **4000 / 4001 / 4002**

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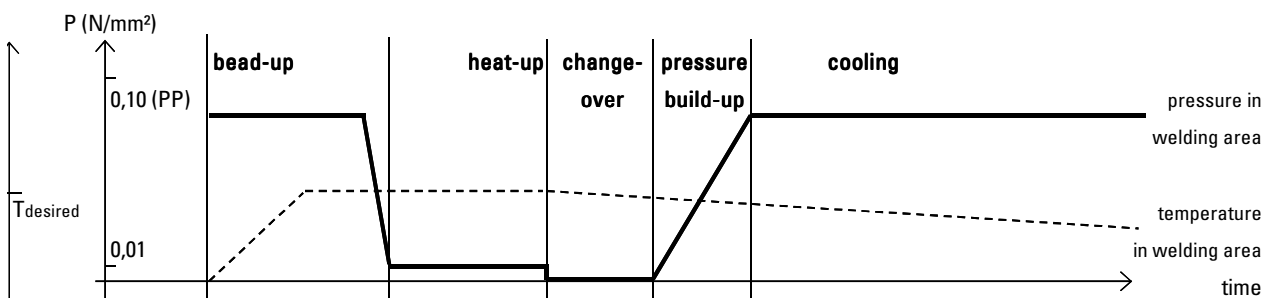
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|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| [mm] | | | | | | | | | | | |
| DA 250 | | | | | | | | | | | |
| 6,2 | 41 | 21 | 0,5 | 01:12 | 6 | 7 | 21 | 05:22 | 06:42 | 08:32 | 04:31 |
| 7,7 | 33 | 26 | 1 | 01:29 | 6 | 8 | 26 | 06:29 | 08:08 | 10:20 | 05:25 |
| 9,6 | 26 | 32 | 1 | 01:49 | 7 | 9 | 32 | 07:49 | 09:50 | 12:37 | 06:34 |
| 14,2 | 17,6 | 46 | 1 | 02:37 | 8 | 13 | 46 | 10:55 | 13:53 | 18:10 | 09:15 |
| 14,8 | 17 | 48 | 1 | 02:43 | 8 | 13 | 48 | 11:18 | 14:24 | 18:54 | 09:36 |
| 22,7 | 11 | 71 | 1,5 | 04:00 | 10 | 20 | 71 | 16:39 | 21:10 | 28:14 | 14:07 |
| 27,9 | 9 | 85 | 2 | 04:47 | 12 | 24 | 85 | 20:23 | 25:44 | 34:15 | 17:13 |
| 34,2 | 7,4 | 101 | 2 | 05:39 | 13 | 29 | 101 | 24:58 | 31:27 | 41:41 | 21:13 |
| DA 280 | | | | | | | | | | | |
| 6,9 | 41 | 26 | 0,5 | 01:20 | 6 | 7 | 26 | 05:55 | 07:24 | 09:23 | 04:56 |
| 8,6 | 33 | 32 | 1 | 01:38 | 6 | 8 | 32 | 07:07 | 08:56 | 11:25 | 05:58 |
| 10,7 | 26 | 40 | 1 | 02:01 | 7 | 10 | 40 | 08:35 | 10:50 | 13:56 | 07:13 |
| 15,9 | 17,6 | 58 | 1 | 02:55 | 8 | 14 | 58 | 12:00 | 15:21 | 20:14 | 10:14 |
| 16,6 | 17 | 60 | 1 | 03:02 | 8 | 15 | 60 | 12:27 | 15:57 | 21:05 | 10:38 |
| 25,4 | 11 | 89 | 1,5 | 04:25 | 11 | 22 | 89 | 18:34 | 23:29 | 31:19 | 15:39 |
| 31,3 | 9 | 107 | 2 | 05:15 | 12 | 27 | 107 | 22:51 | 28:49 | 38:16 | 19:22 |
| 38,3 | 7,4 | 127 | 2,5 | 06:11 | 14 | 33 | 127 | 27:54 | 35:12 | 46:36 | 23:48 |

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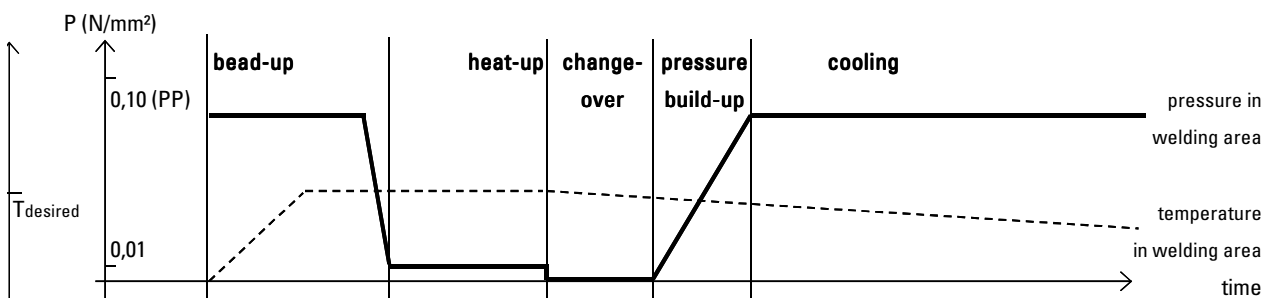
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|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| [mm] | | [bar] | [mm] | [min:s] | [s] | [s] | [bar] | [min:s] | [min:s] | [min:s] | [min:s] |
| DA 315 | | | | | | | | | | | |
| 7,7 | 41 | 33 | 1 | 01:29 | 6 | 8 | 33 | 06:29 | 08:08 | 10:20 | 05:25 |
| 9,7 | 33 | 41 | 1 | 01:50 | 7 | 9 | 41 | 07:53 | 09:56 | 12:44 | 06:37 |
| 12,1 | 26 | 51 | 1 | 02:16 | 7 | 11 | 51 | 09:34 | 12:05 | 15:37 | 08:03 |
| 17,9 | 17,6 | 73 | 1 | 03:15 | 9 | 16 | 73 | 13:18 | 17:03 | 22:40 | 11:22 |
| 18,7 | 17 | 76 | 1 | 03:23 | 9 | 17 | 76 | 13:48 | 17:45 | 23:38 | 11:50 |
| 28,6 | 11 | 112 | 2 | 04:53 | 12 | 24 | 112 | 20:53 | 26:22 | 35:04 | 17:39 |
| 35,2 | 9 | 135 | 2 | 05:47 | 14 | 30 | 135 | 25:41 | 32:22 | 42:52 | 21:51 |
| DA 355 | | | | | | | | | | | |
| 8,7 | 41 | 42 | 1 | 01:39 | 6 | 8 | 42 | 07:11 | 09:02 | 11:32 | 06:01 |
| 10,9 | 33 | 52 | 1 | 02:03 | 7 | 10 | 52 | 08:44 | 11:01 | 14:11 | 07:20 |
| 13,6 | 26 | 64 | 1 | 02:31 | 7 | 12 | 64 | 10:32 | 13:22 | 17:27 | 08:55 |
| 20,1 | 17,6 | 92 | 1,5 | 03:36 | 9 | 18 | 92 | 14:47 | 18:57 | 25:15 | 12:38 |
| 21,1 | 17 | 97 | 1,5 | 03:45 | 10 | 19 | 97 | 15:30 | 19:48 | 26:24 | 13:12 |
| 32,2 | 11 | 142 | 2 | 05:22 | 13 | 28 | 142 | 23:31 | 29:38 | 39:20 | 19:57 |
| 39,7 | 9 | 171 | 2,5 | 06:20 | 15 | 34 | 171 | 28:52 | 36:30 | 48:19 | 24:40 |

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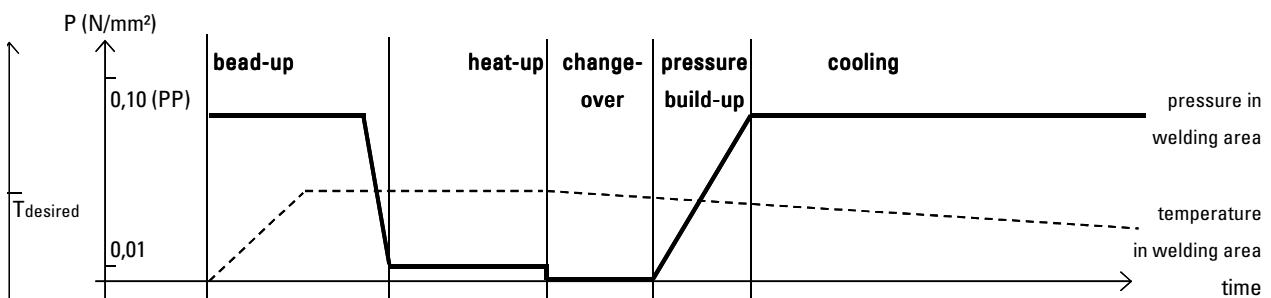
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|---------------|------------|------------------------|--------------------------------|----------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-------------------------|-----------------------|--------------------------------|
| | | | | | | | | < 15°C < 59°F [min:s] | 15-25°C 59-77°F [min:s] | > 25°C > 77°F [min:s] | |
| DA 400 | | | | | | | | | | | |
| 9,8 | 41 | 53 | 1 | 01:51 | 7 | 9 | 53 | 07:58 | 10:01 | 12:52 | 06:41 |
| 12,3 | 33 | 66 | 1 | 02:18 | 7 | 11 | 66 | 09:42 | 12:15 | 15:52 | 08:10 |
| 15,3 | 26 | 81 | 1 | 02:48 | 8 | 14 | 81 | 11:37 | 14:50 | 19:30 | 09:53 |
| 22,7 | 17,6 | 117 | 1,5 | 04:00 | 10 | 20 | 117 | 16:39 | 21:10 | 28:14 | 14:07 |
| 23,7 | 17 | 122 | 1,5 | 04:10 | 10 | 20 | 122 | 17:21 | 22:02 | 29:22 | 14:41 |
| 36,3 | 11 | 181 | 2 | 05:56 | 14 | 31 | 181 | 26:29 | 33:22 | 44:10 | 22:33 |
| DA 450 | | | | | | | | | | | |
| 11,0 | 41 | 66 | 1 | 02:04 | 7 | 10 | 66 | 08:48 | 11:06 | 14:18 | 07:24 |
| 13,8 | 33 | 83 | 1 | 02:33 | 8 | 13 | 83 | 10:39 | 13:33 | 17:41 | 09:02 |
| 17,2 | 26 | 102 | 1 | 03:08 | 8 | 15 | 102 | 12:51 | 16:27 | 21:49 | 10:58 |
| 25,5 | 17,6 | 148 | 1,5 | 04:26 | 11 | 22 | 148 | 18:39 | 23:34 | 31:26 | 15:43 |
| 26,7 | 17 | 155 | 2 | 04:37 | 11 | 23 | 155 | 19:31 | 24:38 | 32:50 | 16:27 |
| 40,9 | 11 | 229 | 2,5 | 06:28 | 15 | 35 | 229 | 29:42 | 37:36 | 49:48 | 25:24 |