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| **PREFORMED SILICONE or EPDM SEAL EXPANSION JOINT SYSTEM** | | | | | | | | | |
| Manufacturer | Manufacturer Information | | | | | | Allowed Max. Movement Parallel to CL RDWY, Mmax  (If design meets minimum installation gap normal to joint requirements, racking requirements, allowed maximum gap parallel to RDWY, Wmax and minimum req’d gap parallel to RDWY, Wmin) | Gap Parallel to CL RDWY @ RDWY Surface, W  (LRFD 14.5.3.2) | |
| Preformed Silicone or EPDM Seal System (Designated Name) | Installation Gap Normal to Joint @ RDWY Surface | | Gap Normal to Joint @ RDWY Surface | | Reduced Allowable Movement Normal to Joint or Use Allowed Max. Movement Parallel to Joint from Initial Installed Position (Racking ) for Skew Effect \*\*\* |
| Min. Req’d | Max. Allowed | Min. Req’d | Max. Allowed | Wmin required | Wmax allowed |
| R J Watson | SF150 | 1” | 2” | 0.5” \* | 2” | See graph for skew & reduced movement | ▲/cos(skew) | 1” | ≤ 4” \*\* |
| R J Watson | SF225 | 1 ¼” | 3” | ¾” \* | 3” | See graph for skew & reduced movement | ▲/cos(skew) | 1” | ≤ 4” \*\* |
| R J Watson | SF400 | 2 ½” | 4” | 1” | 5”♦ | See graph for skew & reduced movement | ▲/cos(skew) | 1” | ≤ 4” \*\* |
|  |  |  |  |  |  |  |  |  |  |
| Watson Bowman Acme (Wabo) | SPS-225 | 1 ¼” | 3” | ¾” \* | 3” | 15% of allowed movement normal to Joint = 0.34” **(Assumed)** | 2 1/4”/cos(skew) | 1” | ≤ 4” \*\* |
| Watson Bowman Acme (Wabo) | SPS-400 | 2 ½” | 4” | 1” | 5”♦ | 15% of allowed movement normal to Joint = 0.60” **(Assumed)** | 4”/cos(skew) | 1” | ≤ 4” \*\* |
|  |  |  |  |  |  |  |  |  |  |
| D S Brown | V-300 | 1 ½” | 3 ½” | ⅝” \* | 3 ⅝” | 15% of allowed movement normal to Joint = 0.45” | 3”/cos(skew) | 1” | ≤ 4” \*\* |
| D S Brown | V-400 | 2½” | 4” | 1” | 5”♦ | 15% of allowed movement normal to Joint = 0.60” | 4”/cos(skew) | 1” | ≤ 4” \*\* |

**Notes:** Maximum skew ≤ 45 degrees

Minimum opening normal to joint = ½” absolute

▲ Use equation: (Value from graph @ skew) + (manufacturer req’d min. gap normal to Joint @ RDWY surface) – (minimum design gap normal to joint @ RDWY surface at maximum design temperature)

**For example:** Say SF225, skew = 45◦, and min. gap normal to joint @ RDWY surface at max. design temperature = 1.35”

then allowed movement normal to joint = 2.15” + 0.75” – 1.35” = 1.55” and allowed movement ll’al to RDWY = 1.55/cos(45) = 2.19”

Max. gap normal to joint = 1.35”+1.55” = 2.9” ≤ 3” allowed by manufacturer O.K

Min. gap ll’al to RDWY, Wmin = 1.35/cos(45) = 1.91” ≥ 1” required by LRFD 14.5.3.2 O.K

Max. gap ll’al to RDWY, Wmax = 1.91” + 2.19” = 4.1” > 4” allowed by LRFD 14.5.3.2. NG. Reduced allowed movement ll’al to RDWY by 0.1” or with SPM or SLE approval use up to 5” max. gap ll’al to RDWY.

**For example:** Say SF400, skew = 45◦, and min. gap normal to joint @ RDWY surface at max. design temperature = 1.5”

then allowed movement normal to joint = 2.80” + 1.00” – 1.50” = 2.30” and allowed movement ll’al to RDWY = 2.30/cos(45) = 3.25”

Max. gap normal to joint = 1.50”+2.30” = 3.80” ≤ 5” allowed by manufacturer O.K

Min. gap ll’al to RDWY, Wmin = 1.50/cos(45) = 2.12” ≥ 1” required by LRFD 14.5.3.2 O.K

Max. gap ll’al to RDWY, Wmax = 2.12” + 3.25” = 5.37” > 4” allowed by LRFD 14.5.3.2 NG Reduced allowed movement ll’al to RDWY by 1.37” or with SPM or SLE approval use 5” max. gap ll’al to RDWY and reduce allowed movement ll’al to RDWY by 0.37”.

♦ May need to reduce maximum gap normal to joint @ RDWY surface **as skew increases** and as needed to get the maximum opening parallel to RDWY, W = 4” (or ≤ 5” with SPM or SLE approval).

\* Increase this value as needed to get minimum opening parallel to RDWY, Wmin = 1” and reduce the movement.

For example: Say SF 225, Skew = 0, and minimum gap normal to joint, Gmin = 1”. Maximum movement normal to joint = 3” – 1” = 2” instead of 2.25”.

\*\* Wmax ≤ 4” LRFD 14.5.3.2 (With SPM or SLE approval the maximum gap, Wmax may be taken greater than 4” up to 5” parallel to CL RDWY at RDWY surface).

\*\*\* Check racking for minimum installation temperature, maximum installation temperature and 60◦ F. Generally installation temperature range = 40◦ F to 70◦ F. Instead of 70◦ F, a lower maximum installation temperature (in 10◦ F increment) can be considered with SPM or SLE approval to achieve the required minimum installation gap normal to joint. Report minimum and maximum design installation temperature on plan details.

Verify installation gap normal to joint @ RDWY surface at minimum and maximum design installation temperature; minimum gap normal to joint @ RDWY surface at design maximum temperature, maximum gap normal to joint @ RDWY surface at design minimum temperature; racking from minimum installation temperature, maximum installation temperature and 60◦ F; maximum movement parallel to CL RDWY, M, and maximum gap parallel to CL RDWY, Wmax, and minimum gap parallel to CL RDWY, Wmin.

Maximum movement parallel to CL RDWY, M = Wmax - Wmin