Article

Green Pin® swage sockets (S-6414 ad S-6415)

Subject

Instructions for use - Green Pin® swage sockets (S-6414 and S-6415)

Date

26-11-2024

Ref

PI-03-14 EN

Revision

B

S-6414

S-6415

Frequently Asked Questions

Subject:
Note: Main dimensions, general info and warnings can be found in our latest catalogue.

Green Pin® swage sockets

- Material : drop forged steel C-1035
- Finish : self coloured

Swage Sockets are recommended for use on 6 x 19 or 6 x 37 IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire ropes. They are also approved for use on galvanized bridge rope. Before using swage sockets with other type lay, construction or grade of wire rope, it is recommended that the termination be proof loaded to prove the adequacy of the assembly.

The quality achieved in cold swaging fittings onto wire rope is the result of the technique that is employed and the tooling that is used. Proper technique coupled with using swaging dies that are in good repair will produce a satisfactory swage termination.

A satisfactory swage termination is one that does the job for which it is intended and meets customer acceptance. This requires that it be swaged in proper dies to the correct after-swage dimension. It must be free of cracks or folds that could cause failure in service and pressed to the proper tolerance.

Cold swage fittings on wire rope is a sever process requiring considerable cold-flow movement in the fitting. The steel in the fitting is forced under great pressure to flow into the crevices between the wire and strands of the wire rope and, at the same time, the material elongates parallel to the wire rope. It is for these reasons that the swaging must be done in progressive pressings with lubricant on the dies and dies in good condition.

The swaging process must also be done in multiple pressings to eliminate excessive "flashing." The term "flashing" is used to indicate the material that extrudes or is squeezed out into the area between the die faces. If excessive "flashing" has been created, it will most likely be folded back in the next pressing and will develop into a definite and permanent mark in the material and possibly a crack.

To avoid this situation, the following basic procedure is recommended:

- Apply lubricant, such as light oil, to both die blocks.
- Mark the rope to indicate the proper length of rope to be inserted into the socket (See Figure 1).

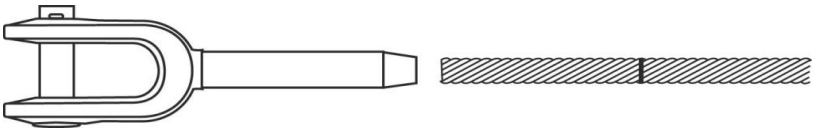

Figure 1: Mark the rope to indicate proper amount to insert into socket

- Insert the rope into the socket and swage the sockets with the specified dies (See Figure 2).

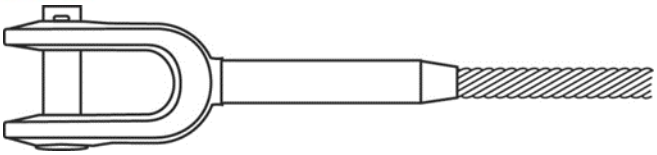

Figure 2: Insert the rope into the socket

- Close the die blocks approximately one-half of the distance between first contact and fully closed (See Figures 3 and 4).

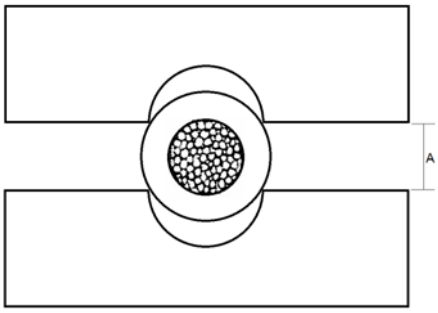

Figure 3: first contact between dies and fittings

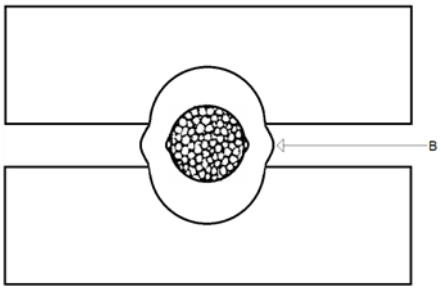

Figure 4:Dies have been closed about 50% of A. Note: no pronounced flash at B.

- Open dies and rotate the fitting 45 degrees to 90 degrees (1/8 to 1/4 turn) and again close dies approximately one-half of the distance between first contact and fully closed. (See Figures 5 and 6).

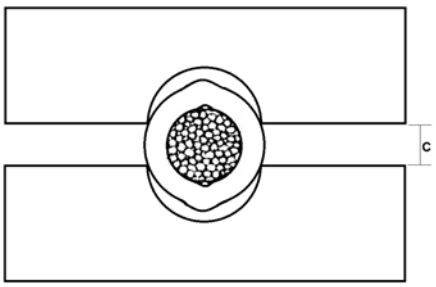

Figure 5: fitting has been rotated 90º. Dies have been closed to first contact fitting.

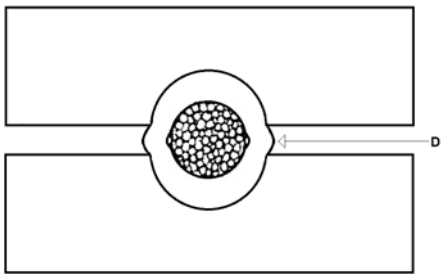

Figure 6: Dies have been closed. about 50% of C. Note: only minor flash at D.

- Open dies and rotate the fitting 45 degrees to 90 degrees and fully close dies (See Figures 7 and 8). It is only necessary to close until lubricant is squeezed out between die faces.

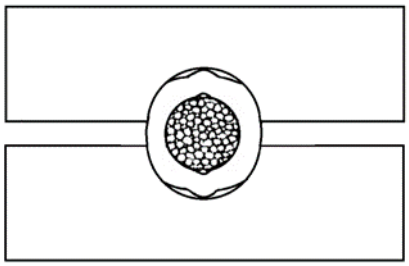

Figure 7: fitting has been rotated 90º. Dies have been closed to first contact fitting.

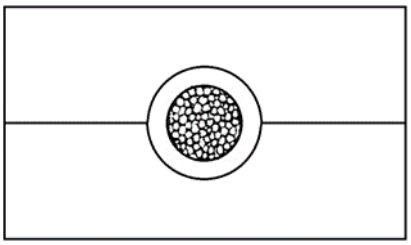

Figure 8: Dies have been fully closed.

Another pressing may be desired to further round the fitting for appearance. Depending upon the size of the fitting, it may be necessary to increase the number of presses; this will be apparent by the amount of flash generation if too few pressings are used.

It will be necessary on large size Swage Sockets, because of limited press capacity, to progressively swage the shank. This is done by dividing the shank into equal segments and then, beginning at the rope end of the socket, to completely swage the first segment using the previously mentioned procedure. The next segment is then fed into the dies and completely swaged; this is repeated until the shank has been totally swaged. **It is important not to swage beyond the machined portion of the shank.**

Swaging dies should be inspected periodically for excessive die wear. The dies should be free of any scores, which may interfere with the cold flow of the metal or cause marking of the fitting being swaged. When scores appear in the cavities, they should be polished out. Dies showing excessive wear should be replaced.
The table hereunder lists the swaging die size and the maximum OD of the fitting after swaging. These are meant to serve as an inspection guide. The maximum OD after swaging takes into account die tolerance, die wear, and material spring-back.

SWAGE SOCKETS

SIZE INCHES (MM)	NOMINAL DIE SIZE INCHES (MM)	MIN. O.D. AFTER SWAGING * INCHES (MM)	MAX. O.D. AFTER SWAGING * INCHES (MM)
1/4 (6)	.44 (11.2)	.428 (10.87)	.46 (11.68)
5/16 (8)	.69 (17.5)	.678 (17.22)	.71 (18.03)
3/8 (9-10)	.69 (17.5)	.678 (17.22)	.71 (18.03)
7/16 (11-12)	.88 (22.4)	.865 (21.97)	.91 (23.11)
1/2 (13)	.88 (22.4)	.865 (21.97)	.91 (23.11)
9/16 (14)	1.12 (28.4)	1.115 (28.32)	1.16 (29.46)
5/8 (16)	1.12 (28.4)	1.115 (28.32)	1.16 (29.46)
3/4 (18-20)	1.38 (35.1)	1.365 (34.67)	1.42 (36.07)
7/8 (22)	1.50 (38.1)	1.49 (37.85)	1.55 (39.37)
1 (24-26)	1.75 (44.5)	1.74 (44.2)	1.80 (45.72)
1 1/8 (28)	2.00 (50.8)	1.99 (50.55)	2.05 (52.07)
1 1/4 (32)	2.25 (57.2)	2.24 (56.9)	2.30 (58.42)
1 3/8 (35)	2.50 (63.5)	2.49 (63.25)	2.56 (65.02)
1 1/2 (38)	2.75 (69.9)	2.74 (69.6)	2.81 (71.37)
1 3/4 (44)	3.00 (76.2)	2.99 (75.95)	3.06 (77.72)
2 (48-52)	3.50 (88.9)	3.49 (88.65)	3.56 (90.42)
2 1/4 (57)	4.0 (101.6)	3.95 (100.33)	4.02 (102.11)
2 1/2 (60-64)	4.38 (111.1)	4.35 (110.49)	4.42 (112.27)
3 (72-80)	5.25 (133.4)	5.24 (133.1)	5.31 (137.87)

It is required that the products are regularly inspected and that the inspection should take place in accordance with the safety standards given in the country of use. This is required because the products in use may be affected by wear, misuse, overloading etc. with a consequence of deformation and alteration of the material structure. Inspection should take place at least every six months and even more frequently when the sockets are used in severe operating conditions.

If you have further questions, please do not hesitate to contact us.
Kind regards,

Van Beest Product Management