

ANVILFLEX® FLEX CONNECTORS

FIG. AF-21-RGF – Groove x Class 150 Flanged Reducing Flex Connector

AnvilFlex Flexible connectors are used to prevent damage to pumps caused by piping stress. AnvilFlex connectors also absorb vibration and noise found in pump installations. AnvilFlex connectors are easily installed and reduce the possibility of pump failure.

They are designed to be pressure tested 1.5 times their maximum rated working pressure and manufactured with a 4:1 safety factor. Their compact design saves valuable space.

See last page for installation instructions.

Working pressure of standard hose and braid up to 1,325 psi (91 bar) or full vacuum and operating temperatures of -400°F (-240° C) to +1,500°F (816° C).

AnvilFlex connectors are manufactured with 321 stainless steel annular corrugated close pitch metal flexible hose. Other stainless steel and corrosion resistant alloys are available. Contact your Anvil representative for additional information.



MATERIAL SPECIFICATIONS

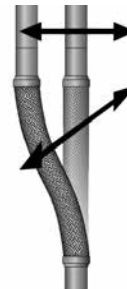
HOSE: 300 Series Stainless Steel

BRAID: Stainless Steel Type 304

ENDS: Schedule 40 Carbon Steel Grooved-Ends

MOTION CLASSIFICATIONS

AnvilFlex flex connectors are braided pump connectors capable of handling the following movements:



PARALLEL



VIBRATION

PARALLEL OFFSET MOTION:

Motion that occurs when one end of the hose assembly is deflected in a plane perpendicular to the longitudinal axis with the ends remaining parallel. Offset is measured as displacement of the free end centerline from the fixed end centerline.

MOTION FREQUENCY:

Permanent Offset - The maximum fixed parallel offset to which the corrugated metal hose assembly may be bent without damage. No further motion is to be imposed other than normal vibration.

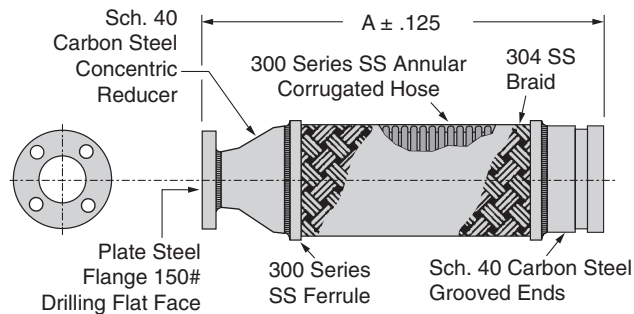
Intermittent Offset is motion that occurs on a regular or irregular cyclic basis. It is normally the result of thermal expansion and contraction or other non-continuous actions.

NOTE: AnvilFlex flex connectors are manufactured with a 4:1 safety factor.

| PROJECT INFORMATION | | APPROVAL STAMP | |
|---------------------|--|--|--|
| Project: | | <input type="checkbox"/> Approved | |
| Address: | | <input type="checkbox"/> Approved as noted | |
| Contractor: | | <input type="checkbox"/> Not approved | |
| Engineer: | | Remarks: | |
| Submittal Date: | | | |
| Notes 1: | | | |
| Notes 2: | | | |

ANVILFLEX® FLEX CONNECTORS

FIG. AF-21-RGF – Groove x Class 150 Flanged Reducing Flex Connector



| AF-21-RGF GRXFL REDUCING FLEX CONNECTORS | | | | | | | | | |
|--|---------------------|------------|------------|--------|------------------|-----------------|--------------|--------------------|-------|
| Nominal Size | | Small O.D. | Large O.D. | Length | Pressure 70°F | Parallel Offset | | Approx. Wt. Ea. | |
| Small Flange | Large Groove & Hose | | | | | Permanent | Intermittent | | |
| In./DN(mm) | In./DN(mm) | In./mm | In./mm | In./mm | PSI/bar | In./mm | In./mm | Lbs./kN | |
| 1½ 40 | 2 | 1.660 | 2.375 | 14 | 450 | 1½ | 5/8 | 6.7 | |
| | 50 | 42.2 | 60.3 | 355.6 | 31.0 | 38.1 | 15.9 | 3.0 | |
| | 2½ | 1.660 | 2.875 | 14 | 300 | 1¼ | 3/8 | 6.9 | |
| 2 50 | 65 | 42.2 | 73.0 | 355.6 | 20.7 | 31.8 | 9.5 | 3.1 | |
| | 2½ | 2.375 | 2.875 | 14 | 300 | 1¼ | 3/8 | 8.1 | |
| | 65 | 60.3 | 73.0 | 355.6 | 20.7 | 31.8 | 9.5 | 3.7 | |
| | 3 | 2.375 | 3.500 | 14 | 275 | ¾ | 3/8 | 10.1 | |
| | 80 | 60.3 | 88.9 | 355.6 | 19.0 | 19.1 | 9.5 | 4.6 | |
| 2½ 65 | 4 | 2.375 | 4.500 | 14 | 270 | ½ | ¼ | 12.0 | |
| | 100 | 60.3 | 114.3 | 355.6 | 18.6 | 12.7 | 6.4 | 5.4 | |
| | 3 | 2.875 | 3.500 | 14 | 275 | ¾ | 3/8 | 11.2 | |
| | 80 | 73.0 | 88.9 | 355.6 | 19.0 | 19.1 | 9.5 | 5.1 | |
| | 4 | 2.875 | 4.500 | 14 | 270 | ½ | ¼ | 14.7 | |
| 3 80 | 100 | 73.0 | 114.3 | 355.6 | 18.6 | 12.7 | 6.4 | 6.7 | |
| | 5 | 2.875 | 5.563 | 18 | 225 | ¾ | 3/8 | 18.9 | |
| | 125 | 73.0 | 141.3 | 457.2 | 15.5 | 19.1 | 9.5 | 8.6 | |
| | 6 | 2.875 | 6.625 | 19 | 165 | ¾ | 3/8 | 25.3 | |
| | 150 | 73.0 | 168.3 | 482.6 | 11.4 | 19.1 | 9.5 | 11.5 | |
| 4 100 | 4 | 3.500 | 4.500 | 15 | 270 | ½ | ¼ | 15.5 | |
| | 100 | 88.9 | 114.3 | 381.0 | 18.6 | 12.7 | 6.4 | 7.0 | |
| | 5 | 3.500 | 5.563 | 18 | 225 | ¾ | 3/8 | 19.7 | |
| | 125 | 88.9 | 141.3 | 457.2 | 15.5 | 19.1 | 9.5 | 8.9 | |
| | 6 | 3.500 | 6.625 | 19 | 165 | ¾ | 3/8 | 26.1 | |
| 5 125 | 150 | 88.9 | 168.3 | 482.6 | 11.4 | 19.1 | 9.5 | 11.8 | |
| | 5 | 4.500 | 5.563 | 18 | 225 | ¾ | 3/8 | 21.6 | |
| | 125 | 114.3 | 141.3 | 457.2 | 15.5 | 19.1 | 9.5 | 9.8 | |
| | 6 | 4.500 | 6.625 | 19 | 165 | ¾ | 3/8 | 28.0 | |
| | 150 | 114.3 | 168.3 | 482.6 | 11.4 | 19.1 | 9.5 | 12.7 | |
| 6 150 | 8 | 4.500 | 8.625 | 20 | 155 | 5/8 | ¼ | 38.4 | |
| | 200 | 114.3 | 219.1 | 508.0 | 10.7 | 15.9 | 6.4 | 17.4 | |
| | 6 | 5.563 | 6.625 | 19 | 165 | ¾ | 3/8 | 31.0 | |
| 8 200 | 150 | 141.3 | 168.3 | 482.6 | 11.4 | 19.1 | 9.5 | 14.1 | |
| | 8 | 5.563 | 8.625 | 20 | 155 | 5/8 | ¼ | 40.7 | |
| | 200 | 141.3 | 219.1 | 508.0 | 10.7 | 15.9 | 6.4 | 18.5 | |
| 10 250 | 6 | 6.625 | 8.625 | 20 | 155 | ½ | ¼ | 41.7 | |
| | 150 | 200 | 168.3 | 219.1 | 508.0 | 10.7 | 12.7 | 6.4 | 18.9 |
| | 8 | 10 | 8.625 | 10.750 | 23 | 150 | ½ | ¼ | 84.0 |
| 12 300 | 200 | 219.1 | 273.1 | 584.2 | 10.3 | 12.7 | 6.4 | 38.1 | |
| | 10 | 12 | 10.750 | 12.750 | 25 | 145 | ½ | ¼ | 102.0 |
| | 250 | 300 | 273.1 | 323.9 | 635.0 | 10.0 | 12.7 | 6.4 | 46.3 |

| FOR TEMP ABOVE 70°F (21.6° C) | |
|-------------------------------|-------------|
| Temperature | Factor S.S. |
| °F / °C | |
| 70 21.1 | 1.00 |
| 200 93.3 | 0.94 |
| 300 148.8 | 0.88 |
| 400 204.4 | 0.83 |
| 500 260.0 | 0.78 |
| 600 315.6 | 0.74 |

For safe working pressure above 70°F (21.1° C), Multiply pressure shown at 70°F. times correction factor of required temperature.

* See Motion Classification on previous page for additional information.
Working pressures shown for the hose and braid are based on an operating temperature of 70° F (21° C) with a 4:1 safety factor.

ANVILFLEX® FIG. AF-21-GG, -GF & -FF

Flex Connectors

Installation

1 Avoid torque. Do not twist the hose assembly during installation when aligning the bolt holes in a flange or in making up pipe threads. The utilization of lap joint flanges or pipe unions will minimize this condition.

2 To install a thread end braided metal hose assembly unions must be used. Do not place wrenches on the braided portion or the collar of the braided metal hose assembly. Use care not to torque the braided metal hose assembly while tightening the union. It is recommended that two wrenches be used in making the union connection; one to prevent the hose from twisting and the other to tighten the coupling.

3 Install the braided metal hose assembly with neutral face-to-face dimension as shown on the submittal drawing. Do not install a braided metal hose assembly compressed (bagged braid). The corrugated inner hose contains the fluid, the braid is designed to take the stress of system pressurization and contain the core.

4 If the braided metal hose assembly must be installed with an initial offset then the maximum allowable movement is reduced by the amount of the initial deflection.

5 Avoid over bending. The repetitive bending of a hose assembly to a radius smaller than the radius specified will result in early hose failure. Always provide sufficient length to prevent over bending and to eliminate strain on the hose assembly. Utilize sound geometric configurations that avoid sharp bends, especially near the end fittings of the assembly.

6 Verify that the movements of the system are within the design parameters of the braided metal hose assembly being installed.

7 Prevent out-of-plane flexing in an installation. Always install the hose assembly so that the flexing takes place in only one plane—this being the plane in which the bending occurs.

8 The maximum system test pressure must not exceed 150% of the maximum rated working pressure as shown.

9 Check system pressure and temperature and do not exceed recommended performance limits. Operation beyond design limits will result in premature failure.

10 The corrugated metal hose alloy must be chemically compatible with the media in the piping system. If in doubt as to suitability, refer to a Chemical Resistance Data table or contact your Anvil rep. for guidance.

11 The flanges on a concentric increasing braided metal hose assembly have the bolt holes straddling the hose centerline. The mating flanges should also straddle the centerline to avoid torque on the braided metal hose assembly.

12 When installing weld end, or sweat end, braided metal hose assemblies, or when welding in the area of a braided metal hose assembly, extreme care is necessary to ensure no weld spatter comes in contact with the braided hose sections.

13 A piping system, which utilizes braided metal hose to absorb movement, must be properly anchored and/or guided. Always support the piping to prevent excessive weight from compressing the hose and relaxing the braid tension.

14 Use care when handling the braided metal hose assembly during transportation, storage, and installation. The braided hose sections must not be allowed to bend, deflect, sag, or otherwise extend beyond their rated capabilities.

15 The shipping sticks, on flanged units, are to keep the braided metal hose assembly in its neutral end-to-end dimension during shipping and installation. After installation, the shipping sticks should be removed.

Maintenance

1 The braided metal hose assembly should be inspected during routine maintenance to ensure there are no signs of external damage. Inspect for frayed or broken braid wires. Also inspect to ensure there is no damage to the hose. In the event that such damage is found, the braided metal hose assembly should be replaced.

2 During system shutdown braided metal hose assembly should be examined to verify no thermal axial motion has occurred causing compression of the assembly.



Groove x Groove
Proper Installation



Groove x Groove
Improper Installation
Parallel



Groove x Groove
Improper Installation
Compressed