ANATOMY
OF A
POUCH
Pouch Anatomy

- Tear Notch
- Zipper Crush
- Zipper Seal
- Zipper Closure (Centerline)
- Hang Hole
- Zipper Crush
- Zipper Seal
- Side Seal
- Point Seal
- Gusset Hole
- Bottom Seal

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Hang Hole

A hang hole is punched in the top of the pouch so that it may be hung from a hook for retail display. One of several different sized hang holes could be used based upon customer needs. Some common sizes are 8mm, 5/16" and 1/4". The size denotes the diameter of the hole. The hang hole position, as specified on the engineering drawing, is measured from the top of the pouch to the center of the hang hole. The hang hole is centered in the pouch horizontally and may be checked by folding the pouch in half from side to side.

If a hang hole is specified for a bottom-fill pouch, it is usually centered vertically in the header seal.
Proper horizontal positioning of the hang hole in addition to being cosmetically correct, is necessary for the product to hang straight on the hook.

Proper vertical positioning of the hang hole is necessary to keep the hole from tearing out and to insure the integrity of the pouch contents. If the hang hole is too high on the pouch there may not be sufficient material to avoid the hang hole from tearing out when the product is placed on the hook. If the hang hole is positioned too low in a header seal then there is an increased possibility that the pouch will leak because the seal will be weak at this point.

The hang hole should be cleanly punched. There should be no ragged edges, scrap hanging from the pouch or torn holes.
Tear Notches

Tear notches are punched into the sides of pouches to make it easier to tear off the top of the pouch to reach the contents. The tear notch punch is actually an elongated hole that is divided equally when the pouches are cut from the web at the end of the pouch-making machine.
There are commonly two sizes of tear notches in use. They are referred to as large or small tear notches. The width of the side seals determine which size tear notch will be used. The most common two widths of side seals are 3/16-inch or 3/8-inch. A small tear notch is used on a pouch that has 3/16-inch side seals. Either a small tear notch or large tear notch may be used on a pouch that has 3/8-inch side seals. Usually however, a large tear notch is most commonly used for the wider side seals.

There is a reason why a small tear notch punch is used with smaller (3/16-inch) side seals. If the seal size varies during production of the pouch or the tear notch becomes out of adjustment, there may be insufficient area between the tear notch and the inner side seal to provide a strong enough seal. If this happens then the seal may not hold, especially if it is a vacuum application pouch.
The tear notch should never touch the zipper crush area. If the tear notch is punched in the zipper crush area there will be a high probability of a leak at this point. A pouch that leaks is a defective pouch.

The tear notch should not be above the bottom of the seal in a bottom-fill pouch. Tear notches in this position will prevent proper opening of the pouch.
The tear notches should be even on both sides of the pouch. Although functional, uneven tear notches detract from the visual appearance of the pouch.

The tear notch position is measured from the top of the pouch to the center of the tear notch with a ruler. An exception may apply if the pouch has a printed tear-line.
If the pouch has a printed tear-line, it will usually be specified on the Work Order that the tear notches should be aligned with tear-line.
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2. The zipper crush is a very important area on the pouch. This is an area that is a major cause of pouch leakage. The zipper crush is checked using the vacuum submerge unit. The pouch is sealed with air inside the pouch. It is then placed in the vacuum submerge unit and observed for any bubbles coming from the zipper crush area. If the pouch is specified to be leak free and a leak is found then production must be stopped until it is determined through inspection that there are no leaking pouches included in the customers order. All the pouches produced since the last inspection in which no leaking pouches were observed must be audited and all leaking pouches must be removed from the order. When production is restarted, no pouches can be included in the order until adjustments have been made on the pouch machine to insure that all pouches being produced are leak free.

3. The zipper seal is where the zipper is bonded to the inside of the pouch. Check the seal by opening the pouch and attempting to peel the zipper material away from the inside of the pouch. If the zipper material can be peeled away from the pouch then the zipper seal is defective. Be sure to check the entire length of the zipper seal, top and bottom of the seal and the front and back panel seals.
4. Zipper burrs occur at either or both ends of the zipper when the Teflon material on the seal bars burns through or is displaced. A zipper burr appears as a small blob of material that is easily felt between the thumb and forefinger. A zipper burr almost always results in a leak, which is an unacceptable defect. Zipper burrs must be corrected and eliminated immediately upon discovery.

5. The visual appearance of the zipper is important to the overall cosmetic appearance. The zipper should lay flat and even in the pouch. There should not be any puckers, wrinkles, etc. in the zipper. The zipper crush should be even (equal) on both sides of the pouch.
6. Zipper orientation refers to placing the zipper in the pouch so that the correct portion of the zipper is toward the consumer and the product. Correct zipper orientation allows the package to open more easily from the consumer side than the product side. A profile of the zipper is illustrated to show correct orientation.
Gusset

There are generally two types of gusseted pouches. These are also referred to as stand-up pouches since the gusset is what enables the pouch to stand up on a shelf.

1. Plowed-in gusset
2. Separate-web gusset

A plowed-in gusset is formed into the pouch from the same roll of material that is used to make the pouch. The separate-web gusset, as its name implies, is formed from a separate roll (web) of material.

The point seals, like the zipper crush, are an area that has a high potential for leaks. The point seals are checked in the same manner as the zipper crush, using the vacuum submerge unit. The zipper crush and the point seals can be checked at the same time. The pouch is sealed with air inside the pouch. It is then placed in the vacuum submerge unit and observed for any bubbles coming from the point seals. If the pouch is specified to be leak free and a leak is found then production must be stopped until it is determined through inspection that there are no leaking pouches included in the customers order. All the pouches produced since the last inspection in which no leaking pouches were observed must be audited and all leaking pouches must be removed from the order. When production is restarted, no pouches can be included in the order until adjustments have been made on the pouch machine to insure that all pouches being produced are leak free.
The gusset holes are formed in the material in the same manner as tear notches. The gusset holes are where the front and back panel of the pouch is formed together so that the pouch will stand up. They are round holes punched into the web before being cut into single pouches at the end of the pouch-making machine. Usually on the pouch they are to appear as a half-circle on both sides of the pouch beginning approximately one-eighth inch up from the bottom of the pouch.
There are occasions where the job specifications may call for the gusset holes to be positioned a specified distance from the bottom of the pouch. This distance is checked using a ruler.

Gusset hole position measurement

The gusset shoe seal in a separate-web gusseted pouch should be evenly centered in the pouch. The radius of the gusset opening should contact the inner side seals at the gusset fold.

Gusset radius meets side seal at top of gusset fold
Gusset centered between seals
Gusset radius too high
The bottom seal on a separate-web gusset pouch is measured, using a steel rule, from the bottom of the pouch to the narrowest part of the seal.
Gusset size or gusset depth is measured from the bottom of the pouch. Place a steel rule in the opening of the gusset until it presses against the gusset fold.

The plowed-in gusset pouch is checked in the same manner as the separate-web gusset pouch. The K-Seals should be evenly spaced horizontally. They should touch the side seals at the top of the gusset fold.