The characteristics of the damper depend on the data for the pump system and what level of "smoothness" performance (see below) you require.

MECHANICAL DAMAGE PREVENTION

Pipe Shake, Fatigue, Weld Cracking, & Over Stress Unions, Flanges, & Fittings.

The level of allowable pressure pulsation, depends on three factors:
1. Diameter of pipe. 2. Operating Pressure. 3. Pulse Frequency.

A Nomogram - or "3 Axis Graph" - to help you specify allowable residual pressure fluctuation has been included.

COARSE DAMPENING

STOP PUMP PARTS DAMAGE
GEAR TOOTH WEAR, CHATTER, AND FRACTURE.
DRIVE BELT SLIP, BURN-OUT, AND BREAK-UP
CROSS-HEAD, ROD, AND YOKE DEFLECTION
KEEP PRESSURE VARIATION LESS THAN 12%

STOP WEEPAGE
RELIEF VALVE WEEPING
SURGES CAUSING PREMATURE LIFT
FATIGUE CRACKING OF BURST DISKS
KEEP PRESSURE VARIATION LESS THAN 9%

STOP GAUGE DAMAGE
GAUGES DON'T READ PULSATION
Springy Bourdon Tube, Rack & Pinion wags at their own natural frequency, WITHOUT VIBRATIONS YOU READ AVERAGE STEADY STATE PRESSURE
KEEP PRESSURE VARIATION LESS THAN 6%

INCOMPLETE ATOMIZATION
BEFORE Stop Globlets, Drops & Squirts
- when you want a fine spray -
AFTER
Depending on viscosity and nozzle design
KEEP PRESSURE VARIATION LESS THAN 5%

MEDIUM DAMPENING

IMPROVE STATIC MIXING
BEFORE Pulsed in Un-mixed out
Pulseless in Mixed out
AFTER
KEEP PRESSURE VARIATION LESS THAN 4%

STOP PADDLE WHEEL METER SURGING
BEFORE Erratic Jerks
AFTER Constant Rotation
KEEP PRESSURE VARIATION LESS THAN 2%

MEDIUM DAMPENING

MAKE SET FREQUENCY MAG. METERS USEABLE

TURBINE SCREW METER "RATCHETING"
KICK FROM PULSE STARTS THE SPIN WEIGHT OF SCREW BLADES & SHAFT
KEEPS IT SPINNING, NEXT KICK GIVES OVERSPEED OR STOPS IT,
SOON YOU HAVE NO ACCURACY
STAY LESS THAN 1.5%
DEPENDING ON VISCOSITY

FINE DAMPENING

CORIOLIS
Loop tube 90 Hz or Straight tube 900 Hz
Hit a multiple or divisor of, or that frequency
AND THE TUBES SWING WILDLY
They can register 100 Kilos /sec.
When you have only 5
Stabilize to
LESS THAN 1.0%

NO NON-SENSE VORTEX SHEDDING
BEFORE [75.6 ft]
VORTICES, ARE MINUTE LOW PRESSURE ZONES
AND ARE CREATED AT A RATE RELATIVE TO FLOW VELOCITY
AFTER
WITHOUT PRESSURE PULSATION "VORTEX SHEDDING" METERS WORK
GO LESS THAN 0.75%

DELTA P. METER A SHARP EDGED ORIFICE & A DIFFERENTIAL PRESSURE GAUGE
BEFORE 0.05 Bar
KEEP PULSES LESS THAN 1 PSI
0.75 PSI
0.07 Bar