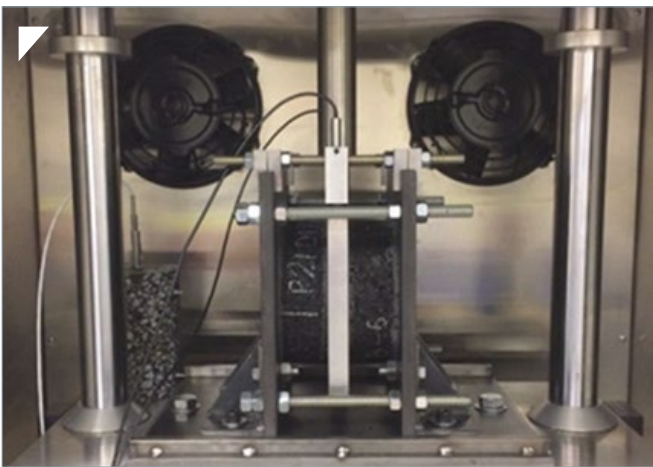


# Duplicate Shear Test Jig (DST)

The University of Texas at Arlington Dr. S. A. Romanoschi and M Khajeh Hosseini

## ADVANCED PAVEMENTS TESTING SYSTEMS



Permanent shear deformation is the main cause of rutting in asphalt mixture layers. The determination of asphalt mixtures' shear properties is therefore crucial for predicting rutting in asphalt pavement structures and identifying poor performing asphalt mixtures.

The new Duplicate Shear Test Jig (DST), invented by Dr. Stefan A. Romanoschi and Mohammadreza Khajeh Hosseini of the The University of Texas at Arlington, was developed to replicate similar loading conditions and constraints of the Superpave Shear Tester (SST).

This new device determines the mechanical average of the shear properties and responses of two specimens instead of that of a single one, as in the SST tests.

Simple and inexpensive, the DST device can be used with Universal Testing Machines (UTMs) or AsphaltQube that can provide repeated dynamic and static axial loads in a temperature-controlled environment. The two most used SST tests, the Frequency Sweep Test at Constant Height (FSCH) and the Repeated Shear Test at Constant Height (RSCH) can be performed with the DST device mounted inside a UTM or AsphaltQube.

## Specifications

### Features

- Precision engineered
- Easily extends the capability of your UTM, Asphalt Standards Tester or AsphaltQube Systems
- Designed specifically for 150mm diameter asphalt specimen
- Constructed using high quality materials (structural steel C45, zinc plated) for long life and test accuracy
- Designed for high stiffness and extremely low compliance
- Quick and easy set-up and running of test with IPC Global's UTS Software.

### Specifications

<b>Specimen diameter</b>	150 mm
<b>Minimum height</b>	38 mm
<b>Maximum height</b>	60 mm

Two specimens required per test

### Ordering Information

- PV70750 – Duplicate Shear Test (DST) jig, including gluing alignment jig

#### LVDTs for UTM and Asphalt Standards Tester

- PV70206 – On Specimen LVDT (+/-0.5mm) with In-Line Conditioner (ILC)

#### LVDTs for AsphaltQube

- 79-PV72103 – On Specimen LVDT (+/-0.5mm) with In-Line Conditioner (ILC)

### Dimensions and Weight

<b>Weight (Jig)</b>	23kg
<b>Weight (Glue Jig)</b>	9.4kg
<b>Dimensions</b>	340x375x250mm (HxWxD)

## A Smart Device

**The DST is designed to provide direct measurement of fundamental shear properties or responses of asphalt mixtures.**

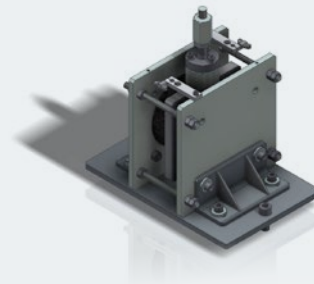
Simple and relatively inexpensive, this smart device can be adopted by any asphalt laboratory equipped with a UTM, Asphalt Standards Tester or AsphaltQube. Following a defined standard test procedures will produce reliable and repeatable measurements.

**Extremely versatile, the DST can:**

- Replicate the SuperPave Shear Tester (SST) loading conditions and constraints
- Perform FSCH and RSCH tests
- Can be used with most UTMs available in many asphalt laboratories.

A simple performance test equipment, the DST is a perfect complement to mix design methods, providing fundamental input variables that improve performance prediction models and mechanistic pavement design procedures.

## Test Description



### FSCH Test at 30°C

- Three pairs for each mixture
- 10 Frequencies (0.01 Hz to 10 Hz)
- 75 to 125 microstrains

### RSCH Test at 50°C

- Three pairs for each mixture
- 69 kPa
- 5,000 loading cycles

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