KAHN SERIES 101
GENERAL PURPOSE
DYNAMOTOMETERS
FOR LOAD TESTING OF SMALL GAS
TURBINES, GASOLINE ENGINES, AUXILIARY
POWER UNITS, ELECTRIC AND HYDRAULIC
MOTORS, HIGH SPEED GEARBOXES, BELT
AND CHAIN DRIVES.

FEATURES
- Easy to install and to operate
- Lightweight, portable units with standard
  AND 10266/10262 mounting flange
- Hardened stainless steel power elements providing
  superior resistance to cavitation and corrosion
- Straightforward design permitting quick overhaul
- Spring loaded, precision ball bearings—grease
  packed or oil mist lubricated
- Water cooled quality carbon face seal
- Built-in 60 tooth gear for use with magnetic speed
  pickup
- Full power absorption in either direction of rotation

OPERATING PRINCIPLE
A single perforated disc rotates in a housing between
perforated stator. Cold water enters the rotor
chamber at the center. The water is accelerated by the
rotating disc and thrown outwards. From the outer
diameter of the rotor chamber inwards, the water
forms an annulus which rotates at approximately half
of the angular disc speed. The centrifugal pressure
resulting from this process, forces the hot water out
of the rotor chambers.

Power is absorbed—and converted into heat—by
water vortices generated in rotor and stator holes. The
resulting drag applies a resistance to rotation and
keeps the two discs at equal speed, thereby keeping
the dynamometer housing in the trunnion bearings. The housing is
restrained from turning by a load cell which is mounted
to the torque arm at a fixed distance from the centerline of the dynamometer.

The amount of power absorbed by the dynamometer is a function of water level (size of rotating water
annulus) and speed. The water level is modulated
with the inlet and outlet control valves. At a given
speed, maximum power is absorbed when the rotor chambers are completely filled with water.

WATER SUPPLY REQUIREMENTS
Hydraulic dynamometers convert mechanical energy
into heat. The heat is dissipated by a continuous flow of
water through the dynamometer. The flow rate is pro-
portional to the amount of power absorbed.

Water Flow* 6 gal/hr hp (30 l/hr kW)
Supply Pressure 50 psig (325 bar)
Max. Inlet Temperature 90°F (32°C)
Max. Outlet Temperature 140°F (60°C)
Filtration 40 mesh screen
Seal Water Flow 0.1 gal/min (0.4 l/min)
*at delta t = 50°F (28°C)

ROTOR ASSEMBLY
Single perforated disc mounted on shaft by means of
an involute spline. Shaft and disc made from hardened
stainless steel. 60-tooth shaft mounted gear. Entire rotor
assembly dynamically balanced.

BEARINGS, LUBRICATION AND SEAL
Two ABEC 5 or ABEC 7 precision ball bearings. Spring
loaded to reduce vibration. Grease packed or oil mist
lubricated. Oil mist lubricated units with one removable
oil injector per bearing. Including wall mounted oil mist
system with air pressure regulator, filter and lubricator.

Lubricating Oil MIL-L-7808 or Mobil DTE 24
Oil Reservoir Capacity 19 oz (.56 l)
Air Requirements max. 20 scfm dry air
Air Supply Pressure 50-100 psig (3.5-7.0 bar)

Stationary carbon face seal with chrome plated mating
ring. Continuously cooled with water to prevent distor-
tion and cracking of the carbon ring. Any water leakage
across the carbon face seal is discharged by a rotat-
ing flinger into a drain cavity.

HOUSING AND TRUNNION MOUNT
Lightweight aluminum housing supported by two
grease packed trunnion bearings. Trunnion mount with
AND 10266/10262 mounting flange. Rotor chamber
lined with hardened stainless steel stator plates.
Built-in vacuum breaker to maintain atmospheric
pressure in the rotor chamber.
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. Power hp</th>
<th>Max. Speed rpm</th>
<th>Max. Torque ft.lbf</th>
<th>WR² in²lb</th>
<th>Dry Weight lbs</th>
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<tbody>
<tr>
<td>101-080</td>
<td>450</td>
<td>14,000</td>
<td>250</td>
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<td>50</td>
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<td>85</td>
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</table>

**OPERATING RANGE**

![Graph showing operating range for SERIES 101 GENERAL PURPOSE DYNAMOMETERS]
NOTE: The information included herein was correct at the time of publication and supersedes all previous data. It is our policy to continually improve our products to insure even better performance. Consequently, current Kahn products may incorporate modifications not shown on these pages.