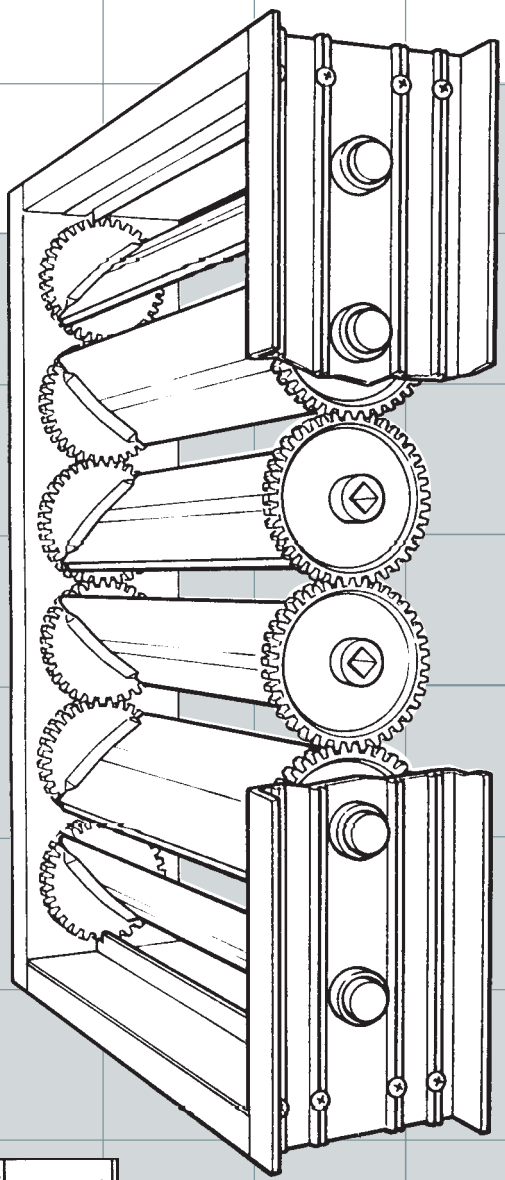
temperzone

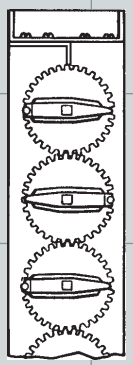
TRD Series

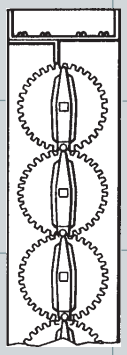
Technical Data

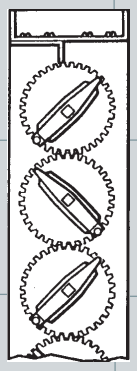
Air Regulating Damper

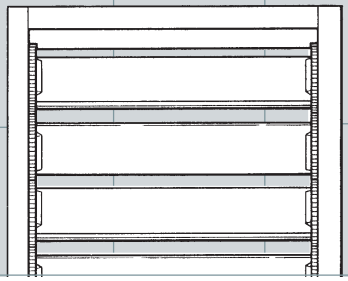
VOLUME & PRESSURE APPLICATIONS











JUNE 2005

TRD SERIES - AIR REGULATING DAMPER

GENERAL

The **temperzone** TRD damper is an opposed blade airflow regulating damper for the control of volume and/or pressure within air conditioning and ventilation ducted systems and air handler units.

DESIGN

The aerofoil shaped hollow blades are fitted with a flexible edge seal strip, and are supported each end by substantial locating ribs on the drive gears. Blade and drive gear assemblies are housed inside the channel frame, running in low friction bearings, eliminating the need for external linkages and covers. The square stainless steel drive shaft can be inserted into any blade, left or right hand, allowing unlimited choice of actuator or quadrant location.

CONSTRUCTION

Frame

Aluminium alloy 6063-T5 extrusion, with integral flanges and stiffening ribs.

Blades

Aluminium alloy 6063-T5 hollow extrusion of aerofoil shape with internal stiffening ribs. A flexible seal is fitted in one edge of each blade.

Drive Gears

High grade polyester (PB) toothed gear wheels, with blade support ribs.

Bearings

Moulded acetal, pressed into frame, concealed within drive gear cavity.

Drive Shaft

12 mm square section stainless steel. Push-fit into the blade and drive gear.

DIMENSIONS (mm)

Standard internal size increments are 100, both length and height.

Single Section	*Minimum* :	200 wide x 100 high (1 blade)
	Maximum :	1200 wide x 1200 high (12 blades)

Larger dampers are assembled with multiple sections (refer figure 5).

Multiple sections can be assembled on site, or built as one unit at factory.

For special (non-standard) dampers sizes, refer to your local **temperzone** Sales Office.

ACCESSORIES

Actuator, mounting plate, locking quadrant type lever (for manual operation)

INSTALLATION

TRD dampers can be incorporated easily into ductwork or equipment spigots by fixing directly to the flanged frame.

It is recommended that the TRD be mounted with the blades horizontal for longer maintenance-free operation. For manual or infrequent motorised operation the damper can be installed with blades vertical .

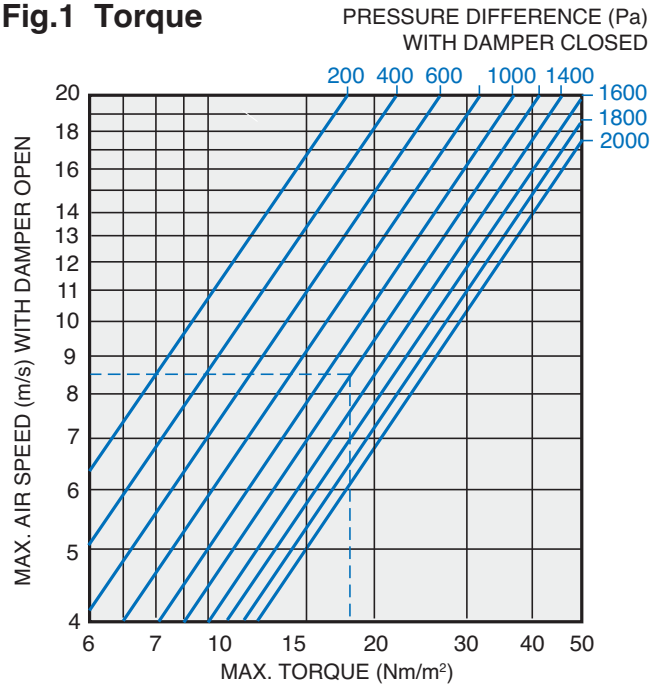
Fit the TRD damper square and free of twist. Remove the bung from the selected blade, insert the drive shaft and fit the mounting plate and the quadrant or actuator to suit the installation.

ORDERING OPTIONS

The TRD dampers can be supplied for manual or motorised operation, to suit customer requirements :

1. **Base Unit**
   TRD damper with mounting plate and drive shaft supplied loose.
2. **Manual Unit**
   Base unit with mounting plate and locking quadrant fitted to client specification or supplied loose.
3. **Motorised**
   Base unit with actuator and mounting plate, factory fitted to client specification or supplied loose.

Fig.1 Torque



TORQUE EXAMPLE:

Find the Torque for a TRD damper with an area of 0.6 m², maximum air speed of 8.5 m/s, and a closed damper pressure difference of 1200 Pa.

Enter Figure 1 at 8.5 m/s air speed. Read across to intersect the 1200 Pa diagonal line. Read down to 18 Nm/m².
Calculate:

Max. Torque = Damper Area (m²) x Torque (Nm/m²)
= 0.6 x 18
= 10.8 Nm

PERFORMANCE DATA

Fig.2 Closed Damper Leakage

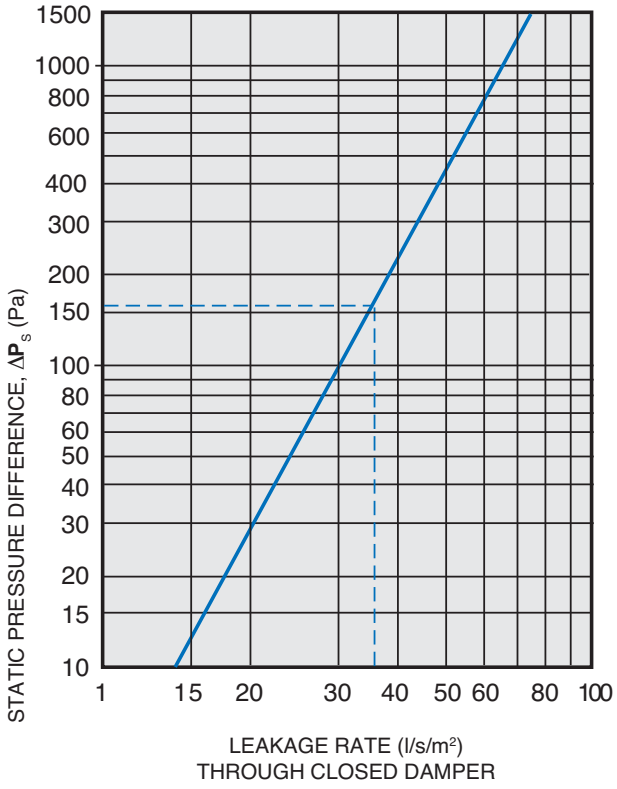
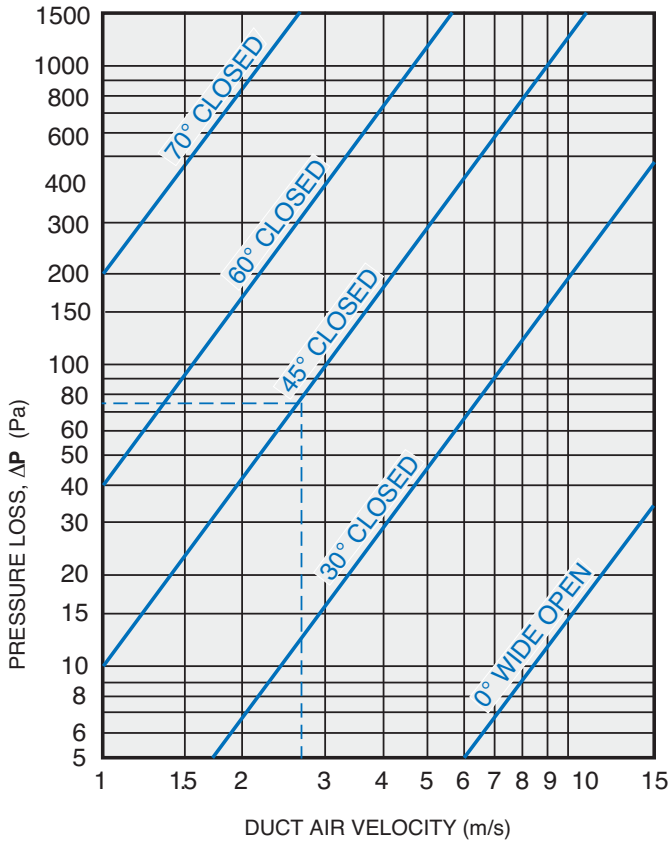


Fig.3 Pressure Loss



AIR LEAKAGE EXAMPLE:
Find the leakage for a TRD of 0.8 m² duct area when subject to a static pressure difference (ΔP_s) of 160 Pa.

Enter Figure 2 at ΔP_s 160 Pa. Read across to intersect diagonal line. Read down to 36 l/s/m².
Calculate:
Leakage = Duct Area (m²) x Leakage Rate (l/s/m²)
= 0.8 x 36
= 28.8 l/s

PRESSURE LOSS EXAMPLE:
Find the Pressure Loss for a TRD of 0.8 m² duct area with an air volume of 2.2 m³/s at a blade setting of 45°.

Duct Velocity = $\frac{2.2\ m^3/s}{0.8\ m^2}$ = 2.75 m/s

Enter Figure 3 at 2.75 m/s velocity. Read up to the intersection of the 45°blade setting line. Read across to left side to pressure loss value, i.e. at 45°, ΔP = 75 Pa

Fig. 4 Single Section

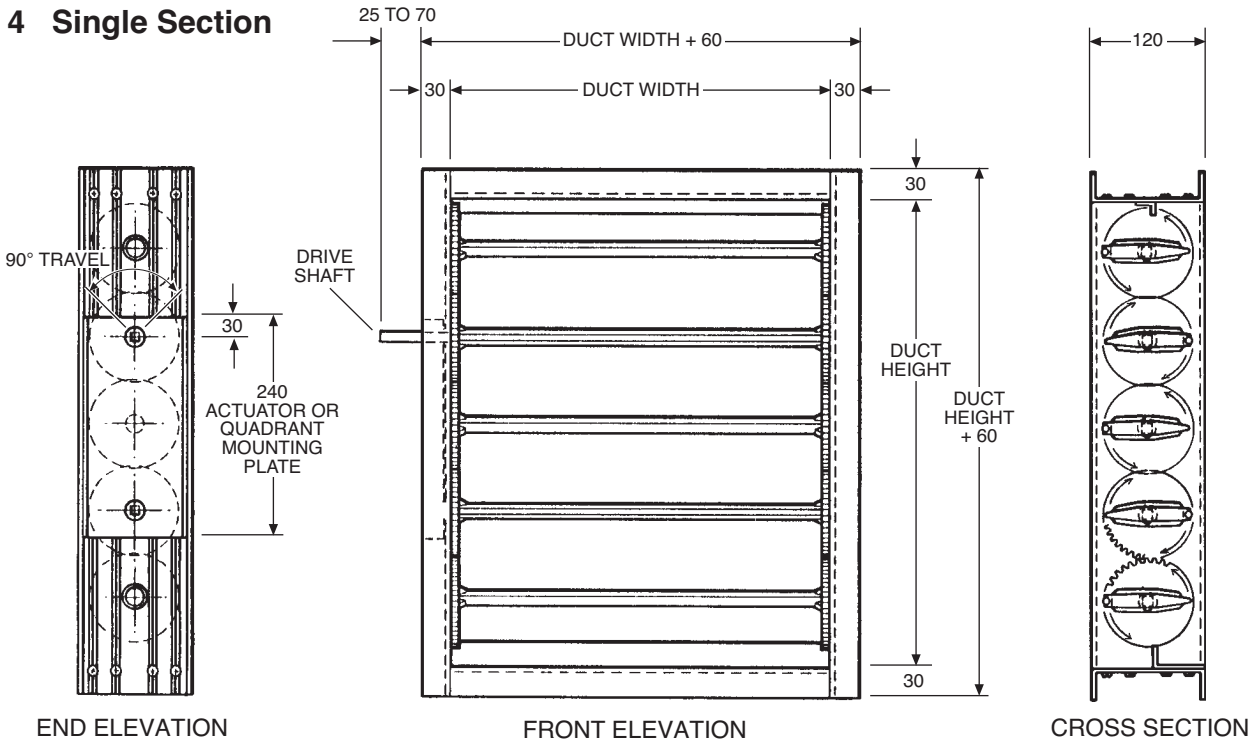
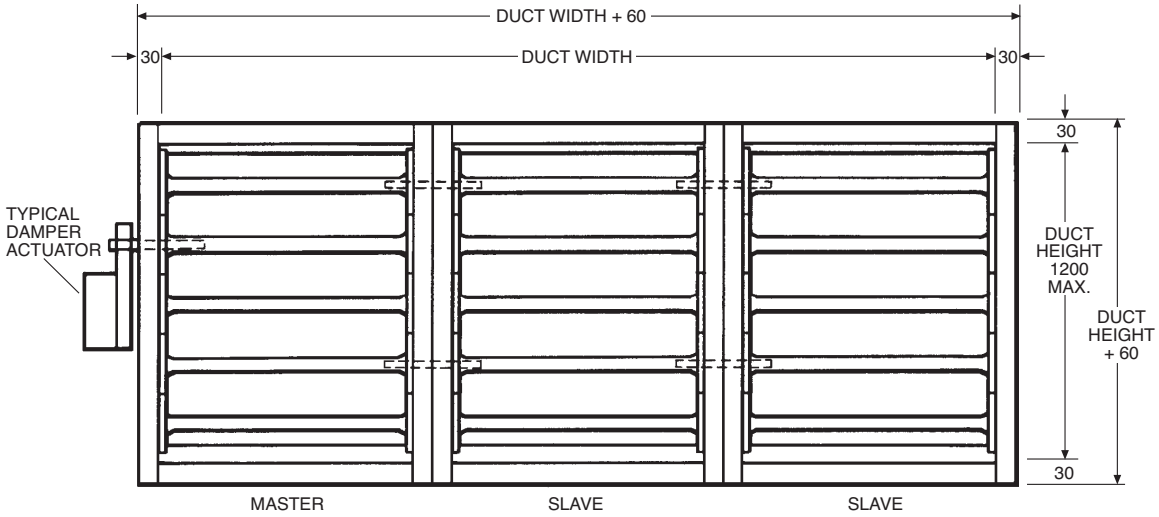


Fig. 5 Multiple Sections



Note
Materials and specifications are subject to change without notice due the manufacturer's ongoing research and development programme.

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