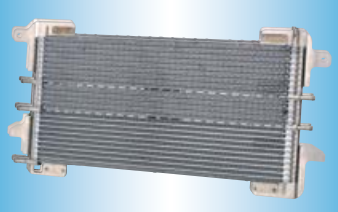
Transmission Oil Cooling and Warming Products

DANA LONG® Thermal Products

Thermal-Management Products

Dana, the leading transmission oil cooler manufacturer in the world, offers a full range of innovative heat-exchange solutions – both air- and coolant-cooled – to meet your unique needs.



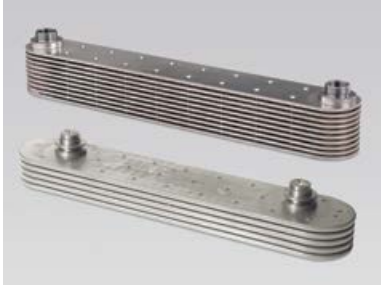
Liquid-to-Liquid Heat Exchangers

Aluminum Self-Contained Cooling and Warming Products									
Length (mm)	94	110	140	148	120	140	172	210	327
Width (mm)	62	70	70	74	80	80	69	94	100

Stainless Steel Self-Contained Cooling Products	
Length (mm)	203
Width (mm)	116

Aluminum and Brass Radiator In-Tank Products									
Length (mm)	210	254			292	300	305		
Width (mm)	28	28	36	44.5	44	45	28	36	44.5

Aluminum and Brass Radiator In-Tank Products							
Length (mm)	Designed to customer specifications						
Diameter (mm)	19	22	25.4	28	32	38	44.5



Stainless Steel Radiator In-Tank Products			
Length (mm)	216	292	457
Width (mm)	44	63.5	76.2

Liquid-to-Air Heat Exchangers

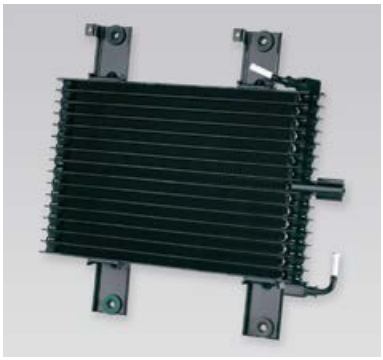
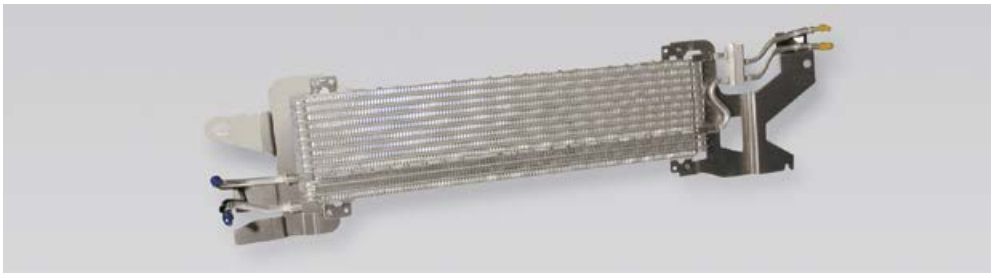


Plate and Fin Design					
Core Depth (mm)	19	20	32	32	50
Core Length (mm)	280, 580, 670	212	158, 253, 340, 580	400 to 850 (max.)	277, 355
Core Height (mm)	Designed to customer specifications				
Fin Density (fins per inch)					

Stacked Plate Design			
Core Depth (mm)	19	19	38
Core Length (mm)	102	280	280
Core Height (mm)	Designed to customer specifications		



Combination Coolers
Designed to customer specifications

Active and Passive Warm-Up Products

Thermal management is a critical area of engine design. A certain percentage of fuel has to be consumed in order to overcome friction in powertrain components such as the transmission, engine, and axle. To enhance vehicle efficiency, a reduction of this friction is necessary. Dana engineers found that maintaining hot oils in the powertrain increased both efficiency and overall fuel economy.

Two techniques that help maintain optimum hot oil temperatures, especially in cold climates where it takes longer for engines to meet optimum operating temperatures, are:

- Capturing the thermal energy generated inside each component
- Bringing in external, otherwise wasted, thermal energy from the vehicle cooling and exhaust systems to warm engine oils

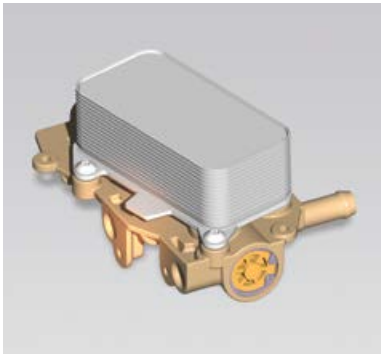
Thermal Bypass Valve (TBV)

This device prevents cold or partially warmed oils from leaving powertrain components such as the transmission. Internal circulation of vehicle oils keeps thermal energy from dissipating and consequently improves efficiency.

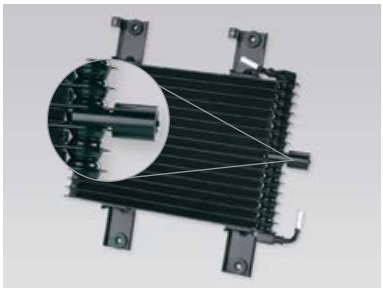
Active Warm-Up (AWU)

In most vehicle applications in the northern hemisphere, heat generated internally is not sufficient to bring oils to optimum temperature quickly enough to reduce friction or parasitic losses. AWU uses otherwise wasted thermal energies, such as heat lost through cooling systems or engine exhaust, to warm these oils – even above what can be achieved through TBVs alone.

The combination of these two technologies creates an integrated system that reduces complexity and increases the system's response time, bringing vehicle oils to optimum operating temperature quickly and maintaining it, resulting in a significant reduction of fuel consumption and emissions.



Stand Alone							
Length (mm)	61	25	41	52	52	60	48
Width (mm)	20	23	23	23	23	33	45
Height (mm)	61	69	71	70	74	77	71



Integrated with Heat Exchanger

Designed to customer specifications

Thermal Bypass Valve Cartridges

Designed to customer specifications

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Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.