Symbol	Typ	Titel
F	**Sektion**	**MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING**
F01	**Untersektion**	**ENGINES OR PUMPS**
F01	**Klasse**	**MACHINES OR ENGINES IN GENERAL (combustion engines F02; machines for liquids F03 , F04); ENGINE PLANTS IN GENERAL; STEAM ENGINES**
F01P	**Unterklasse**	**COOLING OF MACHINES OR ENGINES IN GENERAL; COOLING OF INTERNAL-COMBUSTION ENGINES (arrangements in connection with cooling of propulsion units in vehicles B60K 11/00; heat-transfer, heat-exchange or heat-storage materials C09K 5/00; heat-exchange in general, radiators F28)**
		Air cooling; Liquid cooling (propelling cooling-air or liquid coolants F01P 5/00; controlling supply or circulation of coolants F01P 7/00; cylinders, pistons, valves, fuel injectors, sparking-plugs, or other engine or machine parts, modified to facilitate cooling, see the relevant classes for such parts)
F01P 1/00	**Hauptgruppe**	**Air cooling**
F01P 1/02	1-Punkt Untergruppe	. Arrangements for cooling cylinders or cylinder heads, e.g. ducting cooling-air from its pressure source to cylinders or along cylinders
F01P 1/04	1-Punkt Untergruppe	. Arrangements for cooling pistons
F01P 1/06	1-Punkt Untergruppe	. Arrangements for cooling other engine or machine parts
F01P 1/08	2-Punkt Untergruppe	. . for cooling intake or exhaust valves
F01P 1/10	2-Punkt Untergruppe	. . for cooling fuel injectors or sparking-plugs
F01P 3/00	**Hauptgruppe**	**Liquid cooling**
F01P 3/02	1-Punkt Untergruppe	. Arrangements for cooling cylinders or cylinder heads
F01P 3/04	2-Punkt Untergruppe	. . Liquid-to-air heat-exchangers combined with, or arranged on, cylinders or cylinder heads
F01P 3/06	1-Punkt Untergruppe	. Arrangements for cooling pistons
F01P 3/08	2-Punkt Untergruppe	. . Cooling of piston exterior only, e.g. by jets
F01P 3/10	2-Punkt Untergruppe	. . Cooling by flow of coolant through pistons
F01P 3/12	1-Punkt Untergruppe	. Arrangements for cooling other engine or machine parts
F01P 3/14	2-Punkt Untergruppe	. . for cooling intake or exhaust valves
F01P 3/16	2-Punkt Untergruppe	. . for cooling fuel injectors or sparking-plugs
F01P 3/18	1-Punkt Untergruppe	. Arrangement or mounting of liquid-to-air heat-exchangers (such arrangements on cylinders or cylinder heads F01P 3/04; relative to vehicles B60K 11/04)
F01P 3/20	1-Punkt Untergruppe	. Cooling circuits not specific to a single part of engine or machine (F01P 3/22 takes precedence)
F01P 3/22	1-Punkt Untergruppe	. characterised by evaporation and condensation of coolant in closed cycles (other cooling by evaporation F01P 9/02); characterised by the coolant reaching higher temperatures than normal atmospheric boiling-point
		Pumping cooling-air or liquid coolants; Controlling circulation or supply of coolants
F01P 5/00	**Hauptgruppe**	**Pumping cooling-air or liquid coolants (controlling circulation or supply of coolants by influencing drive of pumps F01P 7/00)**
F01P 5/02	1-Punkt Untergruppe	. Pumping cooling-air; Arrangements of cooling-air pumps, e.g. fans or blowers
F01P 5/04	2-Punkt Untergruppe	. . Pump-driving arrangements

Symbol	Typ	Titel
F01P 5/06	2-Punkt Untergruppe	. . Guiding or ducting air to or from ducted fans
F01P 5/08	2-Punkt Untergruppe	. . Use of engine exhaust gases for pumping cooling-air
F01P 5/10	1-Punkt Untergruppe	. Pumping liquid coolant; Arrangements of coolant pumps
F01P 5/12	2-Punkt Untergruppe	. . Pump-driving arrangements
F01P 5/14	1-Punkt Untergruppe	. Safety means against, or active at, failure of coolant-pump drives, e.g. shutting engine down; Means for indicating functioning of coolant pumps
F01P 7/00	**Hauptgruppe**	**Controlling of coolant flow**
F01P 7/02	1-Punkt Untergruppe	. the coolant being cooling-air
F01P 7/04	2-Punkt Untergruppe	. . by varying pump speed, e.g. by changing pump-drive gear ratio
F01P 7/06	2-Punkt Untergruppe	. . by varying blade pitch
F01P 7/08	2-Punkt Untergruppe	. . by cutting in or out of pumps
F01P 7/10	2-Punkt Untergruppe	. . by throttling amount of air flowing through liquid-to-air heat-exchangers
F01P 7/12	3-Punkt Untergruppe	. . . by thermostatic control
F01P 7/14	1-Punkt Untergruppe	. the coolant being liquid
F01P 7/16	2-Punkt Untergruppe	. . by thermostatic control
F01P 9/00	**Hauptgruppe**	**Cooling having pertinent characteristics not provided for in, or of interest apart from, groups F01P 1/00 to F01P 7/00 (profiting from waste heat of combustion-engine cooling F02G 5/00)**
F01P 9/02	1-Punkt Untergruppe	. Cooling by evaporation, e.g. by spraying water on to cylinders (evaporation and condensation of liquid coolant in closed cycles F01P 3/22)
F01P 9/04	1-Punkt Untergruppe	. by simultaneous or alternative use of direct air cooling and liquid cooling (F01P 9/02 takes precedence)
F01P 9/06	1-Punkt Untergruppe	. by use of refrigerating apparatus, e.g. of compressor or absorber type
F01P 11/00	**Hauptgruppe**	**Component parts, details, or accessories, not provided for in, or of interest apart from, groups F01P 1/00 to F01P 9/00**
F01P 11/02	1-Punkt Untergruppe	. Liquid-coolant overflow, venting, or draining devices (automatic draining during freezing conditions F01P 11/20)
F01P 11/04	1-Punkt Untergruppe	. Arrangements of liquid pipes or hoses
F01P 11/06	1-Punkt Untergruppe	. Cleaning (in general B08B); Combating corrosion (in general C23F)
F01P 11/08	1-Punkt Untergruppe	. Arrangements of lubricant coolers (in lubrication apparatus F01M)
F01P 11/10	1-Punkt Untergruppe	. Guiding or ducting cooling-air to or from liquid-to-air heat-exchangers
F01P 11/12	1-Punkt Untergruppe	. Filtering, cooling, or silencing cooling-air
F01P 11/14	1-Punkt Untergruppe	. Indicating devices; Other safety devices
F01P 11/16	2-Punkt Untergruppe	. . concerning coolant temperature (F01P 11/20 takes precedence)
F01P 11/18	2-Punkt Untergruppe	. . concerning coolant pressure, coolant flow, or liquid-coolant level
F01P 11/20	2-Punkt Untergruppe	. . concerning atmospheric freezing conditions, e.g. automatically draining or heating during frosty weather