

## ISO Standards

Hydraulic hose construction and performance is covered by various national and international standards including ISO, BSI, SAE, DIN, API, and CETOP. Most proprietary hoses conform to one standard or another, the SAE standards being the most widely followed in the U.S. SAE standards provide general, dimensional, and performance specifications for the most common hoses used in hydraulic systems on mobile and stationary equipment.

SAE is based on construction technique and material of hydraulic hose. The various application parameters required when selecting hose are size, temperature, fluid type, and pressure, to name a few. Depending on these criteria, the choice of hose construction will change to suit the conditions.

Each of the hydraulic hose styles summarized in the table must meet a set of dimensional and performance characteristics as set forth by SAE, and they are designated as 100R1 through 100R19. However, SAE issues no approval source lists, certification, or letters of approval. Adopting these standards by manufacturers is strictly voluntary. Therefore, SAE standards only ensure a similarity of hoses among different manufacturers, and most manufacturers offer hoses that far exceed SAE standards.

SAE DIMENSIONAL AND PERFORMANCE STANDARDS FOR HYDRAULIC HOSE							
SAE standard hydraulic hose type / application	Compatible Hydraulic fluids	Temperature Range (°F)	Diameter Range (I.D. in)	Max. Operating Range (psi)	Proof Pressure Range (psi)	Min. Burst Pressure Range (psi)	Min. Bend Radius (in)
100R1 - Steel wire reinforced, rubber coated	Petroleum & water based	-40 to 212	3/16 to 2	575 to 3,250	1,150 to 6,500	2,300 to 13,000	3.5 to 25
100R2 - High pressure steel wire, reinforced rubber cover	Petroleum & water based	-40 to 212	3/16 to 2	1,150 to 6,000	2,250 to 12,000	4,500 to 24,000	3.5 to 25
100R3 - Double fiber, braid rubber cover – High temp, low pressure	Petroleum & water based	-40 to 212	3/16 to 1-1/4	375 to 1,500	750 to 3,000	1,500 to 6,000	3 to 10
100R4 - Wire inserted, hydraulic suction and return	Petroleum & water based	-40 to 212	3/4 to 4	35 to 300	70 to 600	140 to 1,200	5 to 24
100R5 - Single wire braid, textile cover – Transportation/DOT	Petroleum & water based	-40 to 212	3/16 to 3-1/16	200 to 300	400 to 6,000	800 to 12,000	3 to 33
100R6 - Single fiber braid, rubber cover – Transportation	Petroleum & water based	-40 to 212	3/16 to 3/4	300 to 500	600 to 1,000	1,200 to 2,000	2 to 6
100R7 - Single fiber braid, thermoplastic – Hydraulic	Petroleum, water based, & synthetic	-40 to 212	1/8 to 1	1,000 to 3,000	2,000 to 6,000	4,000 to 12,000	1 to 12
100R8 - High pressure, thermoplastic Hydraulic	Petroleum, water based & synthetic	-40 to 212	1/8 to 1	2,000 to 6,000	4,000 to 12,000	8,000 to 24,000	1 to 12
100R9	This hose has been removed from the SAE standard.						
100R10	This hose has been removed from the SAE standard.						
100R11	This hose has been removed from the SAE standard.						
100R12 - Heavy duty, high impulse, four spiral wire reinforced, rubber cover – Hydraulic	Petroleum & water based	-40 to 250	3/8 to 2	2,500 to 4,000	5,000 to 8,000	10,000 to 16,000	5 to 25
100R13 - Heavy duty, high impulse, four & six spiral steel wire reinforced, rubber cover – Hydraulic	Petroleum & water based	-40 to 250	3/4 to 2	5,000	10,000	20,000	9.5 to 25
100R14 - High temperature, corrosive fluids, Polytetrafluorethylene (PTFE) lined hydraulic hose, single stainless steel braid	Petroleum, water based, & synthetic	-65 to +400	3/16 to 1-1/4	600 to 1,500	1,200 to 6,000	2,500 to 12,000	1.5 to 16
100R15 - Heavy duty, ultrahigh pressure, six spiral steel wire reinforced, rubber cover – Hydraulic	Petroleum based	-40 to 250	3/8 to 1-1/2	6,000	12,000	24,000	6 to 21
100R16 - Compact, high pressure, two-braided wire reinforced rubber cover – Hydraulic hose cover	Petroleum & water based	-40 to 212	1/4 to 1-1/4	1,800 to 5,800	3,600 to 11,600	7,200 to 23,200	2 to 8
100R17 - Compact, maximum operating pressure, one and two steel braided wire reinforced rubber cover – Hydraulic	Petroleum & water based	-40 to 212	3/16 to 1	3,000	6,000	12,000	2 to 6
100R18 - Thermoplastic, synthetic fiber reinforcement, and a hydraulic fluid & weather resistant thermoplastic cover – Hydraulic	Petroleum, water based, synthetic	-40 to 212	1/8 to 1	3,000	6,000	12,000	1 to 10
100R19 - Compact, maximum operating pressure, one and two-braided steel wire, reinforced rubber cover – Hydraulic	Petroleum & water based	-40 to 212	3/16 to 1	4,000	8,000	16,000	2 to 6

In addition to SAE standards, many manufacturers also manufacture hoses that meet the requirements of other industry standards that differ due to geographic origin—such as ISO or EN/DIN.