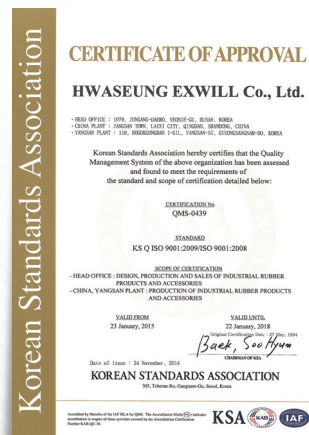




HYDRAULIC HOSE & FITTING



ISO 9001 (품질경영시스템)



ISO 14001 (환경경영시스템)

본 카탈로그의 제품과 인증에 대해 궁금한 사항이 있으시면 아래의 연락처로 문의 바랍니다.



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세계와 만나는 화승 가치를 만드는 화승

화승은 1953년 설립된 이래 변화하는 세계에 능동적으로 대응하며 끊임없는 도전과 혁신으로 성장을 이루어 왔습니다.
현재 자동차부품, 소재, 신발 ODM, 화학, 종합무역 등 사업부문을 두고 세계를 아우르는 글로벌 네트워크를 갖추고 있는 화승은 해외사업 역량을 강화하는 한편 인류와 미래의 풍요로운 삶에 기여하는 GLOBAL STANDARD 그룹으로 거듭나기 위해 성장을 가속화 하고 있습니다.



HWISEUNG belongs to following department

자동차부품 사업

웨더스트립, 호스분야 국내 점유율 1위로서 글로벌 BIG3 진입을 목표로 노력하고 있습니다.

소재 사업

국내1위 고무소재기업으로 국제적으로 인정받는 최고의 상품과 기술을 제공합니다.

신발ODM 사업

세계적인 브랜드에 한발 앞선 트렌드를 담아 월드 베스트 브랜드로 만들어가고 있습니다.

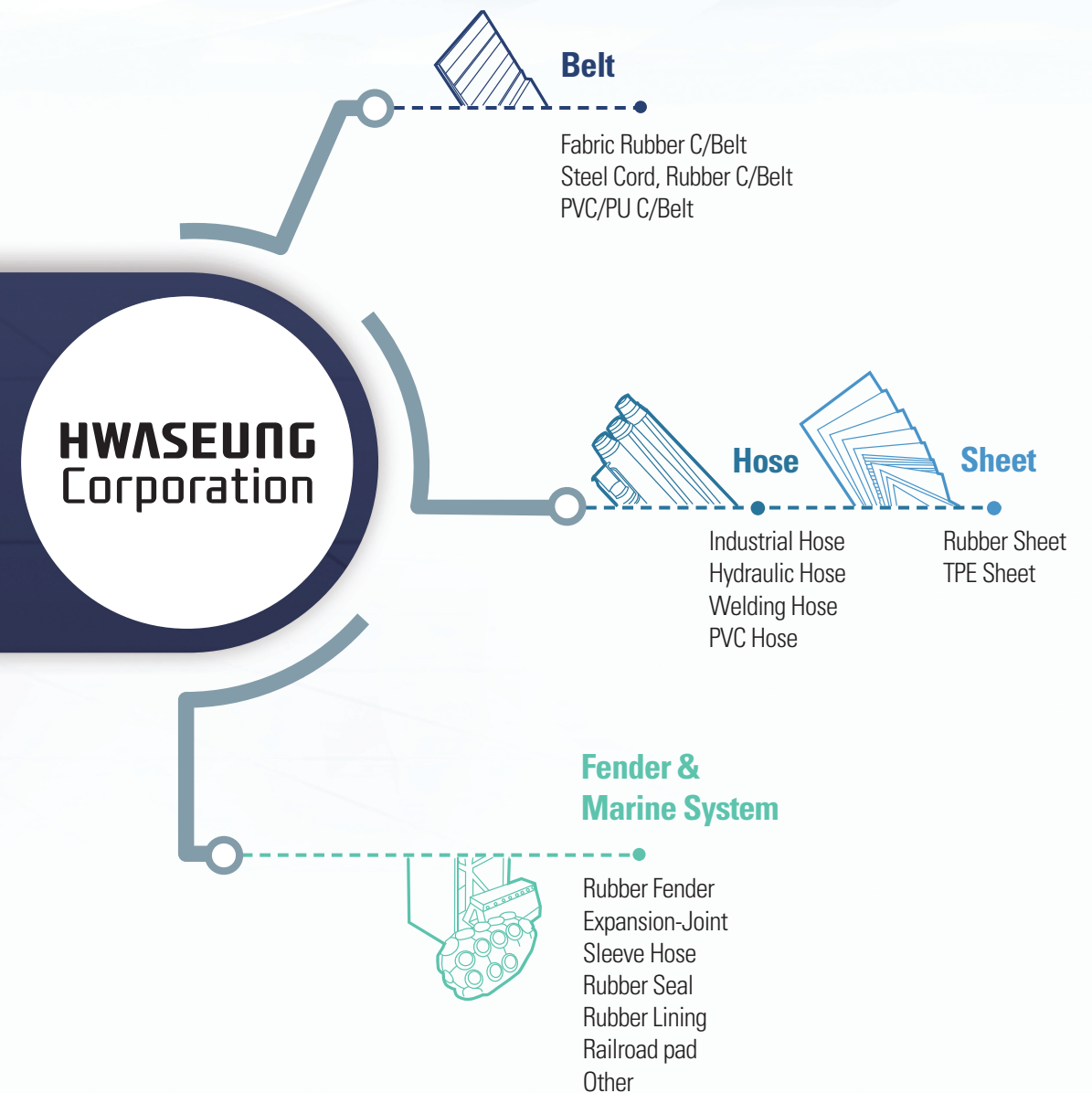
화학 사업

고부가가치 제품개발로 미래형 화학 산업의 글로벌 경쟁력을 강화시키고 있습니다.

종합무역 사업

21세기 전략 사업으로 글로벌 네트워크를 구축하여 신사업의 개발을 지속적으로 추진하고 있습니다.

Business Area



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고압호스 제조설비 List 및 생산 Capa.

고압호스 제조설비 List

Wire & Textile Yarn Braid Hose Making Line

2017. 8.(Rev. 0)

Machine	Specifications	Quantity	Remark
Resin Mandrel Extruder M/C	Ø70	1	-
Inner Tube Extruder M/C	Ø120	2	-
Wire Winding M/C	-	6	-
Wire Reinforcement Braid M/C	RB-2 (Sungil)	20Cr x 2Deck	1/4" ~ 1/2"
		24Cr x 2Deck	1/2" ~ 1"
		36Cr x 2Deck	1"
	MR-11	20Cr x 2Deck	1/4" ~ 1/2"
		24Cr x 1Deck	1/2" ~ 1"
		24Cr x 2Deck	1/2" ~ 1"
	MR-15 (Mayer)	18Cr x 2Deck	1/4" ~ 3/8"
		24Cr x 2Deck	1/2" ~ 1"
	FST	16Cr x 2Deck	1/4" ~ 1/2"
		20Cr x 2Deck	
		20Cr x 1Deck	
	-	36Cr x 2Deck	1" ~ 2"
	-	48Cr x 2Deck	1-1/4" ~ 2-1/2"
	Big Bore	96Cr x 2Deck	2-1/2" ~ 6"
Textile Reinforcement Braid M/C	FST	24Cr x 1Deck	1/4" ~ 1"
Outer Cover Extruder M/C	Ø120	2	-
P.P Covering Extruder M/C	Ø120	2	-
Wrapping M/C	-	2	-
Vulcanizing M/C	6m / 42m	2 / 1	-
P.P Stripping M/C	-	1	-
Unwrapping M/C	-	2	-
Mandrel Stripping M/C	Flexible Mandrel	3	-
	Steel Mandrel	1	-
Proof Pressure Tester	-	4	-
Hose Coiling M/C	-	3	-
Wrapping Packing M/C	-	2	-

Wire Spiral Hose Making Line

Machine	Specifications	Quantity	Remark
Inner Tube Extruder M/C	Ø120	1	-
Wire Winding M/C	-	3	-
Wire Reinforcement Braid M/C	30Cr x 4Deck	1	3/8" ~ 2"
	36Cr x 4Deck(Sungil)	2	
Outer Cover Extruder M/C	Ø120 / Ø150	1 / 1	-
Wrapping M/C	-	1	-
Vulcanizing M/C	42m	1	-
Mandrel Stripping M/C	-	1	-
Unwrapping M/C	-	1	-
Proof Pressure Tester	-	1	-
Hose Coiling M/C	-	2	-
Wrapping Packing M/C	-	1	-

고압호스 제조설비 List 및 생산 Capa.

생산 Capacity

2017. 8.(Rev. 0)

Item	Size	Capacity(Meters)		
		(Day)	(Month)	(Year)
Wire Braid Hose	1/4" ~ 2"	37,500	937,500	11,250,000
Wire Spiral Hose	3/8" ~ 2"	10,000	250,000	3,000,000
etc Hose	Max. 6"	2,500	62,500	750,000
Total		50,000	1,250,000	15,000,000



고압호스 시험 설비 List

2017. 8.(Rev. 0)

Machine	Quantity	Machine	Quantity
Mooney Viscometer	1	Oil Resistance Tester	1
Rheometer	2	Rubber Hose Abrasion Tester	1
Specific Gravity Tester	1	Low Temperature Tester	1
Rubber Sheet Vulcanizing Press	1	Electrical Conductivity Tester	1
Tensile & Compression Tester	2	Flame Resistance Tester	1
Hardness Tester	1	Working, Proof, Burst Pressure Tester	2
Aging Tester	2	Vacuum Tester	1
Heat Tester	2	Static Impulse Tester(BIMAL)	1
Ozone Tester	1	Dynamic Impulse Tester(BIMAL)	1



화승 코퍼레이션 호스를 선정하는 방법

호스를 선정하는 아래 7가지 단어를 기억하세요.

STAMPED

S _ Size / 크기

T _ Temperature / 온도

A _ Application / 적용

M _ Material to be conveyed / 유체

P _ Pressure / 압력

E _ End of Couplings / 끝단 카플링

D _ Delivery(Volume and velocity) / 배수(용량 및 속도)



Size / 크기

호스의 내경은 유체의 유량과 유속에 의해 결정됩니다.

유속이 느리면 시스템 성능이 저하되고, 유속이 빠르면 과도한 압력 강하, 시스템 손상, 유체의 누출 등의 원인이 됩니다.

호스 내경을 결정하기 위해 Flow Capacity Monograph를 참조 하십시오.

호스 내경을 확인하기 위해 외관 마킹 부분을 확인 하십시오.

마킹 내용 확인이 불가능 할 경우 호스를 절단하여 내경 사이즈를 측정 하십시오.

호스 내경 치수는 아래 테이블을 참조 하십시오.

Dash No.	운송용 및 냉각제용 호스를 제외한 전 제품		운송용 및 냉각제용 호스	
	inch	mm	inch	mm
-3	3/16"	4.8	-	-
-4	1/4"	6.4	3/16"	4.8
-5	5/16"	7.9	1/4"	6.4
-6	3/8"	9.5	5/16"	7.9
-8	1/2"	12.7	13/32"	10.3
-10	5/8"	15.9	1/2"	12.7
-12	3/4"	19.1	5/8"	15.9
-14	7/8"	22.2	-	-
-16	1"	25.4	7/8"	22.2

Dash No.	운송용 및 냉각제용 호스를 제외한 전 제품		운송용 및 냉각제용 호스	
	inch	mm	inch	mm
-20	1-1/4"	31.8	1-1/8"	28.6
-24	1-1/2"	38.1	1-3/8"	34.9
-32	2"	50.8	1-13/16"	46.0
-36	2-1/4"	57.2	-	-
-40	2-1/2"	63.5	2-3/8"	60.3
-48	3"	76.2	-	-
-56	3-1/2"	88.9	-	-
-64	4"	101.6	-	-
-72	4-1/2"	114.3	-	-

Flow Capacity Monograph

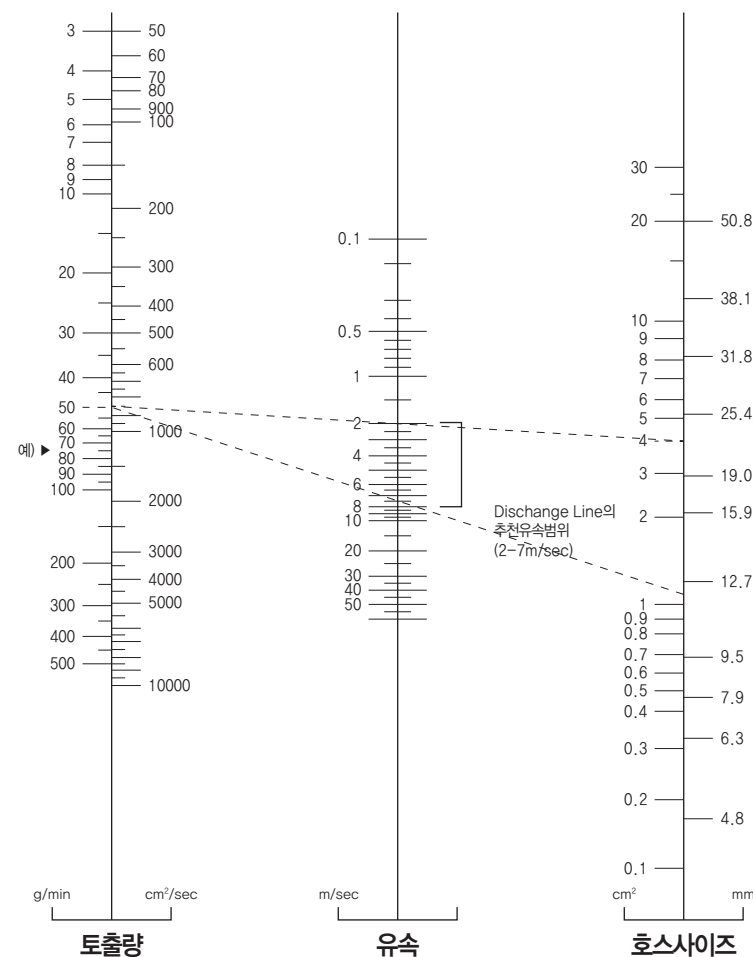
유량·유속에 대한 호스 Size 선정

적합한 호스 Size 선정을 위해 아래의 산출 공식 및 Monograph를 활용 바랍니다.

산출 공식

$$D = \sqrt{\frac{Q \times 0.4081}{V}}$$

Q : Flow in Gallons per Minute(gpm)
V : Velocity in Feet per Second(ft/sec)
D : Hose Inner Diameter(inch)



* 호스의 단면적 산출식 : 단면적(cm²) = (유량(l/min) / 유속(m/sec) x 60) x 10

ex) 토출 유량이 50 l/min이고 유속이 2 ~ 7m/sec 범위일때 적정 호스 Size는?

Monograph에서 토출 유량과 유속 범위의 연장선상에 있는 호스의 Size가 가장 적합합니다. 즉, 위의 그래프에서 점선 범위내에 있는 호스 내경 Ø12.7 ~ Ø19.0mm Size 입니다.

화승 코퍼레이션 호스를 선정하는 방법

Temperature / 온도

호스에 영향을 미치는 온도는 두가지 입니다.
유체의 온도와 외부에 형성되는 주위 온도입니다.
유체의 온도는 호스의 내면고무에 영향을 주며, 주위 온도는 호스의 외면고무와 보강층에 영향을 줍니다.
호스 Item별 요구 성능에 표기되어 있는 사용온도 범위를 참조 하십시오.

Application / 적용

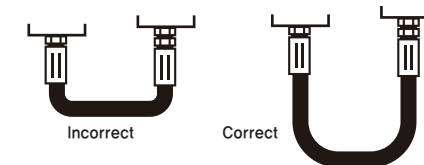
아래 항목에 대하여 확인한후 고압호스 어셈블리 사양을 결정 하십시오.

- 호스가 어디에 어떻게 사용되는가?
- 어떤 장비에 부착되고, 환경적인 요인이 호스에 어떻게 영향을 미치는가?
- 카플링 Type은 무엇인가? 카플링 나사 규격은 무엇인가?
- 영구 부착형 카플링인가? 현장 부착형 카플링인가?
- 호스 어셈블리에 특이한 기계적 부하가 작용하는가?
- 장착되어지는 호스의 최소 굴곡반경은 얼마인가?

※ 호스 조립품의 굴곡반경을 고려시 호스 피팅과 굽힘이 시작되는 지점간에 최소한 호스 외경 대비 두배에 해당하는 직선 길이를 확보해야 합니다.

- 반복 운동에 의해 호스 외면에 지나친 마모가 발생하는가?
- 유체 작동방법에 특이사항은 없는가?

상기 항목을 확인하기 어렵다면 기존에 장착되어 이상없이 사용했던 제품과 동일한 사양으로 주문 하십시오.



Material to be conveyed / 유체

호스에 적용되는 유체가 무엇인지 확인 하십시오.
일반적인 유압 작동유 외에 특수한 케미칼 액체 등을 사용하는 경우도 있습니다.
이런 경우 유체에 내성을 가진 적절한 재료로 생산되어진 제품을 사용하여야 합니다.

※ 카다록에 첨부된 Chemical Resistance Chart를 확인후 적합한 제품을 선택 하십시오.
(호스 내면 / 호스 외면 / 카플링 / 오링 등)

Pressure / 압력

호스 선정시 가장 중요한 부분이 시스템 작동 압력을 확인하는 것입니다.
시스템에 작동되는 최대 압력이 호스 성능표에 표기되어 있는 사용 압력보다 작아야 합니다.
호스의 최대 사용 압력보다 높은 시스템 압력은 호스의 사용 수명을 단축시킵니다.
반드시 시스템 압력에 적합한 호스를 사용하기를 권장합니다.

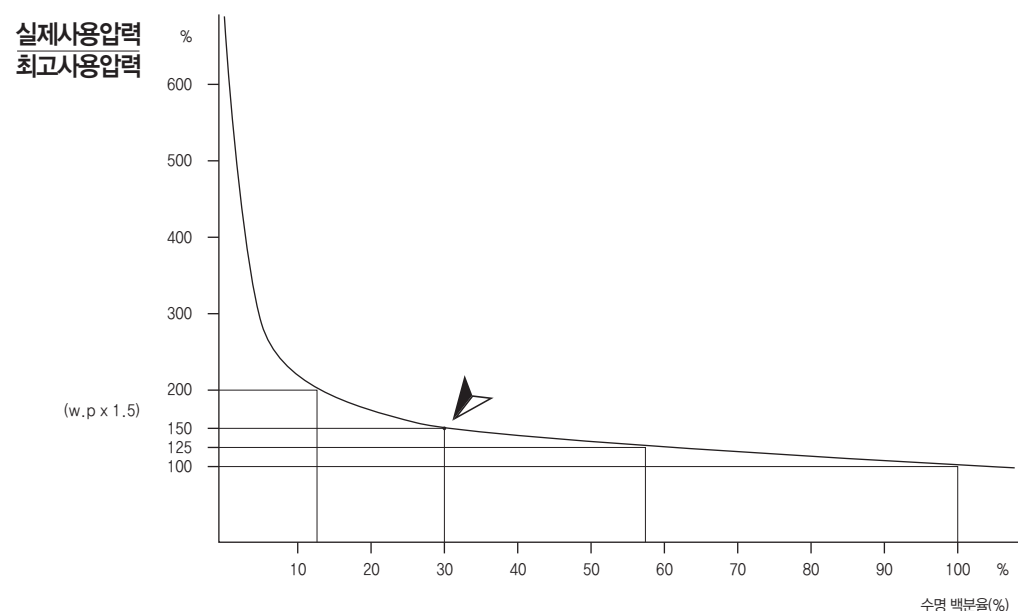
※ 호스에 사용되는 압력의 종류는 다음과 같습니다.

구분	내용
Maximum Working Pressure (최대 사용 압력)	■ 시스템 내에서 최대로 사용할 수 있는 압력
Proof Pressure (보증 압력)	■ 호스의 품질을 보증하기 위한 압력으로 통상 최고 사용 압력의 2배로 지정
Minimum Burst Pressure (최소 파열 압력)	■ 호스가 파열되는 최소 압력 (일반적으로 최대 사용 압력의 4배)
Design Burst Pressure (설계 파열 압력)	■ 보강재료 및 규격에 따라 설계되는 압력

화승 코퍼레이션 호스를 선정하는 방법

호스의 사용 압력과 수명의 관계

보강층이 Wire로 이루어진 고압 호스는 내압력에 의한 금속 고유의 피로한계를 가지고 있습니다. 호스의 최대 사용 압력은 보강층의 피로한계를 감안하여 규정된 수명의 100% 이상이 보장되는 압력이나, 최대 사용 압력 이상으로 사용시 호스의 내압 성능은 급격히 저하되어, 아래의 그래프와 같은 사용 압력과 호스 수명과의 관계를 나타냅니다.



ex) 규정된 최고 사용 압력의 1.5배의 압력으로 사용하는 경우 호스의 수명은 약 30% 단축됩니다.

End of Couplings / 끝단 카플링

호스를 주어진 시스템에 장착하기 위해 호스 끝단에 부착될 카플링 사양을 확인 하십시오. 카플링의 재질, 나사산의 규격, 형태, 조립 Type 등 카다로그를 참고 하십시오.

Delivery(Volume and velocity) / 배수(용량 및 속도)

기준에 장착되어 있는 호스 Size가 시스템에 적합한 유량과 유속을 만족한다면 동일한 사양으로 교체할 것을 권장합니다. 시스템이 신규로 제작 또는 변경된다면 노모 그래프 차트를 이용하여 필요한 호스 Size를 결정 하십시오.



고압호스의 정의 및 구조

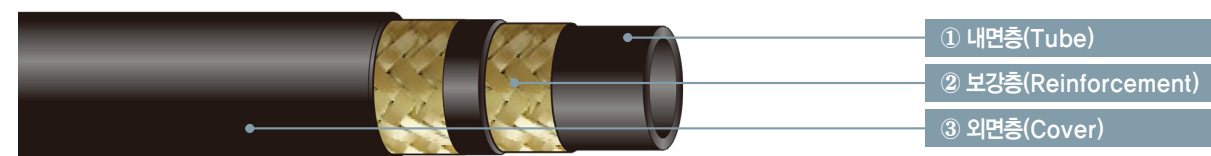
1. 고압호스의 정의

- **고압호스란?** 호스의 기본용도인 유체의 이송과 더불어 산업용설비 및 토목용 건설장비의 사용용도에 필요한 힘을 전달
- **호스의 용도**
 - ▶ 고압호스 | 기계 및 토목용 건설장비 등을 작동시키기 위하여 동력(유압 or 수압)을 전달
 - ▶ 산업용호스 | 일반적으로 단순한 유체의 이송 체계에 사용



2. 고압호스의 구조

- 일반적으로 내면층(①), 보강층(②) 및 외면층(③)으로 구성



성능 호스의 기밀을 유지해 유체의 누출을 방지하는 동맥 역할을 한다. 내면층은 통과되는 유체에 대한 화학적인 또는 물리적인 영향에 견뎌내도록 특별히 설계되어 진다. (내유성, 내화학약품성, 내열성, 내마모성, 내한성 등)

성능 주어지는 SYSTEM의 압력에 견딜 수 있도록 내압력을 강화시켜 주는 근육 역할을 하며 호스의 안전성을 위한 물리적 성능은 보강재의 종류 및 보강방식의 설계에 따라 달라진다.

성능 호스의 가장 바깥쪽 구조층으로서 내면고무와 보강층을 보호하는 역할을 하며, 호스의 종류 및 규격, 제조업체, 사용압력 등이 MARK-ING된다. 또한, 일반적으로 외면층은 용도에 따라 내유성, 내마모성, 내후성, 극한 온도와 같은 사용환경에 적합하도록 선정되어져야 한다. 마지막으로 호스를 장착시 외부 물체와 접촉할 때는 내충격성, 내마모성 등을 부가할 필요가있다.

호스 압력 및 단위 환산표

SAE HOSE WORKING PRESSURE (psi)

Specifica- tion	Hose Style	Description	NOMINAL HOSE INSIDE DIAMETER in INCHES and DASH SIZE															
			3/16 (-3)	1/4 (-4)	5/16 (-5)	3/8 (-6)	1/2 (-8)	5/8 (-10)	3/4 (-12)	1 (-16)	1-1/4 (-20)	1-1/2 (-24)	2 (-32)	2-1/2 (-40)	3 (-48)	3-1/2 (-56)	4 (-64)	
SAE J517	100R1	1WIRE BRAID	3000	2750	2500	2250	2000	1500	1250	1000	625	500	375					
SAE J517	100R1 TYPE S	HIGH PRESSURE 1WIRE BRAID	3630	3260	3120	2610	2320	1890	1520	1280	910	730	580					
SAE J517	100R2	2WIRE BRAID	5000	5000	4250	4000	3500	2750	2250	2000	1625	1250	1125	1000				
SAE J517	100R2 TYPE S	HIGH PRESSURE 2WIRE BRAID	6020	5800	5080	4790	3990	3630	3120	2390	1810	1310	1160	1020				
SAE J517	100R3	2FABRIC BRAID	1500	1250	1200	1125	1000	875	750	565	375							
SAE J517	100R4	SUCTION							300	250	200	150	100	62	56	45	35	
SAE J517	100R6	1FABRIC BRAID	500	400	400	400	400	350	300									
SAE J517	100R7	THERMOPLASTIC	3000	2750	2500	2250	2000	1500	1250	1000								
SAE J517	100R8	HIGH PRESSURE THERMOPLASTIC	5000	5000		4000	3500	2750	2250	2000								
SAE J517	100R9	4WIRE SPIRAL				4500	4000		3000	3000	2500	2000	2000					
SAE J517	100R10	HIGH PRESSURE 4WIRE SPIRAL	10000	8750		7500	6250		5000	4000	3000	2500	2500					
SAE J517	100R11	HIGH PRESSURE 6WIRE SPIRAL	12500	11250		10000	7500		6250	5000	3500	3000	3000	2500				
SAE J517	100R12	4WIRE SPIRAL				4000	4000	4000	4000	4000	3000	2500	2500					
SAE J517	100R13	5000PSI WIRE SPIRAL							5000	5000	5000	5000	5000					
SAE J517	100R15	6000PSI WIRE SPIRAL				6000	6000		6000	6000	6000	6000						
SAE J517	100R16	COMPACT WIRE BRAID		5000	4250	4000	3500	2750	2250	2000	1625							
SAE J517	100R16 TYPE S	HIGH PRESSURE COMPACT WIRE BRAID	6020	5800	5080	4790	3990	3630	3120	2390	1810							
SAE J517	100R17	3000PSI WIRE BRAID		3000	3000	3000	3000	3000	3000	3000								
SAE J517	100R18	3000PSI THERMOPLASTIC	3000	3000	3000	3000	3000	3000	3000	3000								

SAE HOSE WORKING PRESSURE (psi)

Specifica- tion	Hose Style	Description	NOMINAL HOSE INSIDE DIAMETER in INCHES and DASH SIZE															
			1/8 (-3)	3/16 (-4)	1/4 (-5)	5/16 (-6)	3/8 (-7)	13/32 (-8)	1/2 (-10)	5/8 (-12)	3/4 (-14)	7/8 (-16)	1 (-18)	1-1/8 (-20)	1-3/8 (-24)	1-13/16 (-32)	2-3/8 (-40)	3 (-48)
SAE J517	100R5	1WIRE BRAID TEXTILE COVER		3000	3000	2250		2000	1750	1500		800		625	500	350	350	200
SAE J517	100R14	1WIRE BRAID PTFE	1500	1500	1500	1500	1500	1000	800	800	800	800	800	600				

EN HOSE WORKING PRESSURE (psi)

Specification	Hose Style	Description	NOMINAL HOSE INSIDE DIAMETER in INCHES and DASH SIZE										
			3/16 (-3)	1/4 (-4)	5/16 (-5)	3/8 (-6)	1/2 (-8)	5/8 (-10)	3/4 (-12)	1 (-16)	1-1/4 (-20)	1-1/2 (-24)	2 (-32)
EN 853	1ST	1WIRE BRAID STANDARD COVER	3630	3265	3120	2610	2320	1890	1525	1280	915	725	580
EN 853	1SN	1WIRE BRAID THIN COVER	3630	3265	3120	2610	2320	1890	1525	1280	915	725	580
EN 853	2ST	2WIRE BRAID STANDARD COVER	6020	5800	5075	4785	3990	3625	3120	2395	1815	1305	1160
EN 853	2SN	2WIRE BRAID THIN COVER	6020	5800	5075	4785	3990	3625	3120	2395	1815	1305	1160
EN 856	4SP	4WIRE SPIRAL		6530		6455	6020	5080	5080	4065	3050	2685	2395
EN 856	4SH	HIGH PRESSURE 4WIRE SPIRAL							6095	5515	4715	4210	3630
EN 857	1SC	COMPACT 1WIRE BRAID		3265	3120	2610	2325	1890	1525	1280			
EN 857	2SC	COMPACT 2WIRE BRAID		5805	5080	4790	3990	3630	3120	2395			

PRESSURE CONVERSION CHART

	psi	mbar	Bar	kPa	MPa	Kgf/cm²
psi	1	68.95	0.0689	6.895	0.0069	0.070307
mbar	0.0145	1	0.001	0.1	0.0001	1019.716
Bar	14.504	1000	1	100	0.1	1.019716
kPa	0.14504	10	0.01	1	0.001	0.010197
MPa	145.04	10,000	10	1000	1	10.197162
Kgf/cm²	14.223393	980.665	0.980665	98.0665	0.098067	1

LENGTH CONVERSION CHART

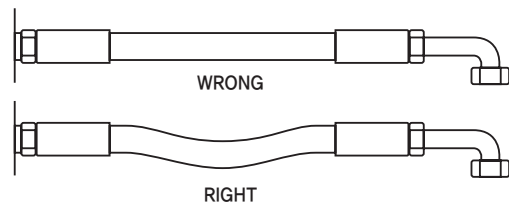
	cm	m	inch	feet	yard	mile
cm	1	0.01	0.393701	0.032808	0.010936	0.000006
m	100	1	39.370079	3.28084	1.093613	0.000621
inch	2.54	0.0254	1	0.083333	0.027778	0.000016
feet	30.48	0.3048	12	1	0.333333	0.000189
yard	91.44	0.9144	36	3	1	0.000568
mile	160934.4	1609.344	63360	5280	1760	1



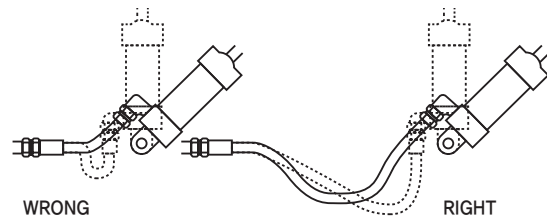
호스 조립시 주의사항

Proper hose installation is essential for satisfactory performance. If hose length is excessive, the appearance of the installation will be unsatisfactory and unnecessary cost of equipment will be involved. If hose assemblies are too short to permit adequate flexing and changes in length due to expansion or contraction, hose service life will be reduced.

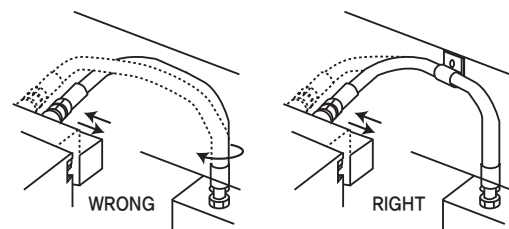
The following diagrams show proper hose installations which provide maximum performance and cost savings. Consider these examples in determining length of a specific assembly.



When hose installation is straight, allow enough slack in hose line to provide for length changes which will occur when pressure is applied.



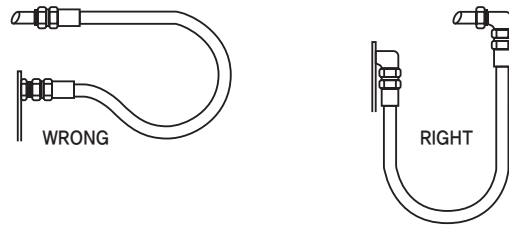
Adequate hose length is necessary to distribute movement on flexing applications and to avoid abrasion.



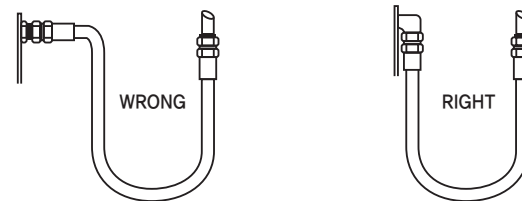
Avoid twisting of hose lines bent in two planes by clamping hose at change of plane.



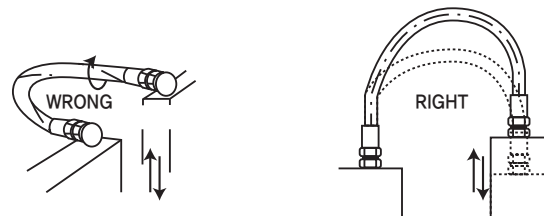
Reduce number of pipe thread joints by using hydraulic adapters instead of pipe fittings.



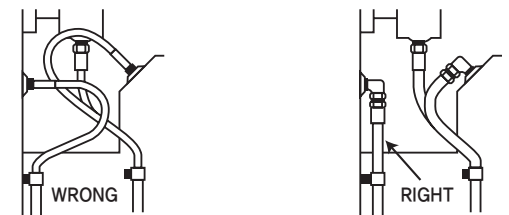
When radius is below the required minimum, use an angle adapter to avoid sharp bends.



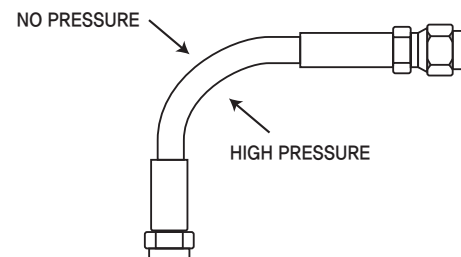
Use proper angle adapters to avoid tight bend in hose.



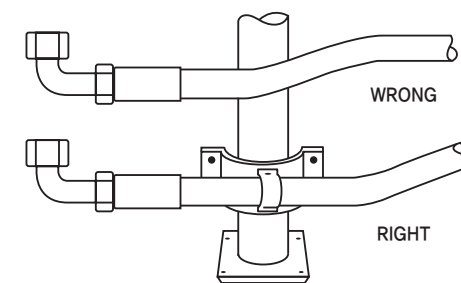
Prevent twisting and distortion by bending hose in same plane as the motion of the port to which hose is connected.



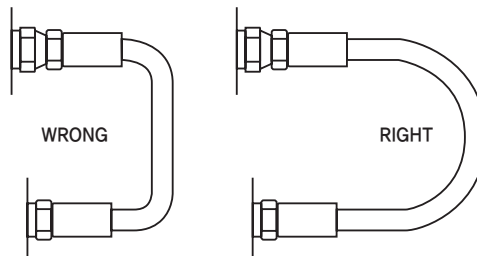
Route hose directly by using 45° and/or 90° adapter and fittings. Avoid excessive hose length to improve appearance.



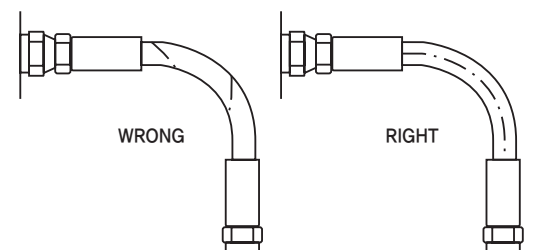
Note : To allow for length changes when hose is pressurized, do not clamp at bends so that curves will absorb changes. Do not clamp high and low pressure lines together.



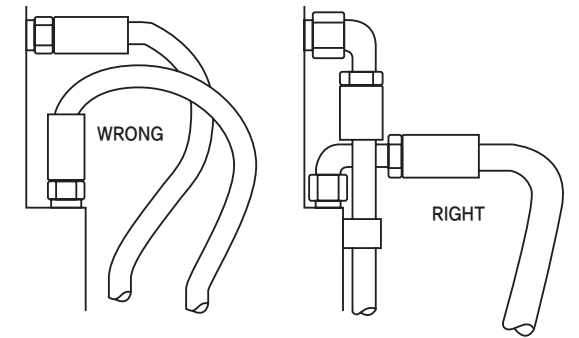
High ambient temperatures shorten hose life, so make sure hose is kept away from hot parts. If this is not possible, insulate hose.



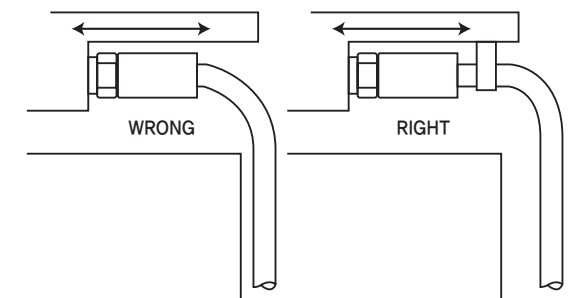
To avoid hose collapse and flow restriction, keep hose bend radius as large as possible. Refer to hose specification tables for minimum bend radius.



When installing hose, make sure it is not twisted. Pressure applied to a twisted hose can result in hose failure or loosening of connections.



Elbows and adapters should be used to relieve strain on the assembly, and to provide neater installations which will be more accessible for inspection and maintenance.



Run hose in the installation so that it avoids rubbing and abrasion. Often, clamps are required to support long hose runs or to keep hose away from moving parts. Use clamps of the correct size. A clamp too large allows hose to move inside the clamp and causes abrasion.

Hydraulic Flareless Assembly Procedure (per SAE J514 6.1.3 & 6.1.4)

1. Bottom the tube in the coupling, and tighten the nut until the ferrule just grips the tube. With a little experience, the technician can determine this point by feel. If the couplings are bench assembled, the gripping action can be determined by rotating the tube by hand as the nut is drawn down. When the tube can no longer be turned by hand, the ferrule has started to grip the tube.
2. After the ferrule grips the tube, tighten the nut one full turn. This may vary slightly with different tubing materials, but for general practice, it is a good rule for the technician to follow.



케미칼 차트

General Chemical Resistance of Hose Compounds

WARNING The following data is based on tests and believed to be reliable; however, the tabulation should be used as a guide ONLY, since it does not take into consideration all variables, such as elevated temperatures, fluid contamination, concentration, etc. that may be encountered in actual use. All critical applications should be tested. Contact Hwaseung Corporation for recommendation and assistance.

Note All data based on 70°F unless otherwise noted..

Common Name	ASTM Designation D1418-64	Composition	General Properties
Buna-N or Nitrile	NBR	Nitrile - Butadiene	Excellent oil resistance. Good physical properties.
Cross Linked Polyethylene	XLPE	Cross Linked Polyethylene	Excellent resistance to most solvents, oils and chemicals. Do not confuse with chemical properties of standard polyethylene.
EPT or EPDM	EPDM	Ethylene - Propylene - diene - terpolymer	Good general purpose polymer. Excellent heat, ozone, and weather resistance. Not oil resistant.
Fluorocarbon resin (Teflon)	TFE	Polytetra - Fluoroethylene	Excellent chemical and solvent resistance, inert to most materials. Smooth anti-adhesive surface-easily cleaned.
GRS or SBR	SBR	Styrene - Butadiene	Good physical properties, including abrasion resistance. Not oil resistant.
Hypalon	CSM	Chloro - sulfonated Polyethylene	Excellent ozone, weathering and acid resistance. Good abrasion and heat resistance. Can be compounded for good oil resistance.
Natural	NR	Isoprene Rubber(Natural)	Excellent physical properties, including abrasion resistance. Not oil resistant.
Neoprene	CR	Chloroprene	Excellent weathering resistance. Flame retardant. Good oil resistance. Good physical properties.
Chlorinated Polyethylene	SM	Chloro - Polyethylene	Good long term resistance to UV and weathering. Good oil and chemical resistance. Excellent flame resistance. Good low temperature impact resistance.
Viton	FPM	Fluorocarbon Rubber	Excellent high temperature resistance, particularly in air or oil. Very good chemical resistance.
Epichlorohydrin	ECO	Ethylene Oxide Chloromethyl	Excellent oil and ozone resistance. Fair flame resistance and low permeability to gases. Good low temperature properties.
Butyl	IIR	Isobutene - Isoprene	Very good weathering resistance, low permeability to air. Good physical properties. Poor resistance to petroleum based fluids.
Ultra - High Molecular Weight Polyethylene	UHMW	Ultra - High Molecular Weight Polyethylene	Excellent chemical resistance.

Chemical Resistance Table

The table below is based on reliable information. Care should be taken to use this data as a guide only, and to take into account such variables as temperature, concentration and fluid contamination. All ratings are given at room temperature, unless stated otherwise. For High Temperature Applications, contact Hwaseung Corporation.

WARNING! Never use brass couplings with any ammonia based fluids.

Rating Scale Blank No known data available A Excellent, little or no swelling or softening B Good, swelling or softening is moderate C Fair, conditional service may be expected D Unsatisfactory, not recommended - Not tested	HS Corporation Hose Polymers	Couplings & Adapters	Rating Scale Blank No known data available A Excellent, little or no swelling or softening B Good, swelling or softening is moderate C Fair, conditional service may be expected D Unsatisfactory, not recommended - Not tested	HS Corporation Hose Polymers	Couplings & Adapters
Chemical Name	CPE EPDM Polyester Neoprene Nylon Teflon TPE Urethane Nitrile	Carbon Steel Stainless Steel 304 Stainless Steel 316 Aluminum Brass	Chemical Name	CPE EPDM Polyester Neoprene Nylon Teflon TPE Urethane Nitrile	Carbon Steel Stainless Steel 304 Stainless Steel 316 Aluminum Brass
A			B		
Acetaldehyde	- A B D B B - D D	A A A A A	Benzene	C D B D B A D D D	A A A A A
Acetic Acid, 10%	A C C A A A A D C	D B B B D	Benzyl Alcohol	A C C C B A D - D	A A A A -
Acetic Acid, 20%	A A C A B A A D C	D B B B D	Borax Solution	A A B A B A - A C	B A A D B
Acetic Acid, 30%	A A C A C A A D D	D B B B D	Boric Acid	A A B A C A A A A	D B B A D
Acetic Acid, 50%	C C C D C A C D D	D B B B D	Bromine	D D D D D B - D D	D D D - D
Acetic Acid, Glacial	C B D D D A D D D	D B B B -	Butane	D D A A B A - D A	A A A - A
Acetic Anhydride	A B C B D A D D D	D B B B D	Butanol	A B B A C A B D A	A A A A A
Acetone	A A C D A A D D D	A A A A A	Butanone	- A A D B A D D D	- - - - -
Acetylene	B A B B A A - C C	A A A A B	Butyl Acetate	D D B D B A - D D	B A A A A
Acrylonitrile	S D - D A A D D D	A A A B A	C		
Adipic Acid	- A - A - A - A A	- - - - -	Calcium Chloride	A A A A B A - A A	D B A D -
Alum	A A D A C A - D A	D B B D D	Calcium Hydroxide	A A C A A A - D A	D D A - B
Aluminum Chloride Solution	A A B A D A - B A	D B B D D	Calcium Hypochlorite, 6%	A A B C A A - B D	D D B D D
Aluminum Sulfate Solution	A A B A A A A B A	D D B D D	Calcium Bisulfide	C A B C B A - C B	- B B D D
Ammonia, Gas	D D D D D D D D D	A A A A D	Calcium Nitrate	A A A A A A - D A	D B B D A
Ammonia, Liquid	D D D D D D D D D	- A A - D	Carbon Dioxide	A B A B B A - D A	A A A A A
Ammonium Carbonate	- A C A B A - B A	A A A - -	Carbon Monoxide	A A A A A A - A A	A A A A A
Ammonium Chloride	A A A A D A - B B	D B B D D	Carbon Tetrachloride	D D D C D A D D D	D D B B B
Ammonium Hydroxide Solution	C A D A A A - D D	B A A - D	Carbonic Acid	A A D A B A D A B	D A A B D
Ammonium Nitrate	A A C A B A - A A	B A A D -	Castor Oil	A B B A B A - B A	A A A A A
Ammonium Sulfate Solution	A A C A B A - B A	D D B D D	Chlorine Gas, Dry	D D D C D A D D D	B D D - B
Amyl Acetate	C A A D B A D D D	D A A D B	Chlorine Gas, Wet	D D D D D B D D D	D D D D D
Amyl Alcohol	B A D A B A A D C	A A A A A	Chloroacetic Acid	B B D A C A D D D	D D D - B
Anhydrous Ammonia	D D D D D D D D D	- - - - -	Chlorobenzene	D D D D A A D B D	B B B D A
Aniline	C B D D C A A D D	B A A D D	Chloroform	D D D D D A D D D	B A A D A
Animal Oils & Fats	A B B B A A A D A	A A A A -	Chlorosulfonic Acid	- D D D D A - D D	A - - - -
Argon	C A A D A A - A A	- - - - -	Chromic Acid, 10%	C D D C D A D D D	D D B D D
ASTM Oil No. 1	A D A A A A D A A	A A A A A	Chromic Acid, 50%	- D D D D A D D D	D D B A D
ASTM Oil No. 2	A D A B A A D B A	A A A A A	Citric Acid Solution	A A B A B A A A A	D D A D D
ASTM Oil No. 3	A D B B A A D A A	A A A A A	Coal Oil	A D A B A A D C A	A A A A A
ASTM Ref. Fuel A	B D A B A A D B A	A A A A A	Copper Chloride Solution	A A A A D A - B A	D D A - D
ASTM Ref. Fuel B	C D A D A A D B B	A A A A A	Copper Sulfate Solution	A A B A B A - C A	D A A D D
ASTM Ref. Fuel C	C D B D A A D C B	A A A - A	Creosote	B D D D D A D C C	B A A A D
Asphalt	B D B C B A - B B	A A A B B	Cresol	D D D D D A D D D	B A A B -
Aviation Gasoline	C D C D - A - B A	A A A A -	Cyclohexane	A D A D B A D B B	A A A A A
B			Cyclohexanol	B D C B B A D - C	- A A B -
Barium Chloride	A A C A B A - A A	D B B D B	Cyclohexanone	C C B D B A D D D	- A A B -
Barium Hydroxide	A A B A B A - D A	D A A D D	D		
Benzaldehyde	C B B D A A D D D	A A A A A	DDT Preparations	A D - D A A - D D	- - - - -

Chemical Resistance Table

The table below is based on reliable information. Care should be taken to use this data as a guide only, and to take into account such variables as temperature, concentration and fluid contamination. All ratings are given at room temperature, unless stated otherwise. For High Temperature Applications, contact Hwaseung Corporation.

WARNING! Never use brass couplings with any ammonia based fluids.

Rating Scale	HS Corporation Hose Poly- mers									Couplings & Adapters				
Blank: No known data available A: Excellent, little or no swelling or softening B: Good, swelling or softening is moderate C: Fair, conditional service may be expected D: Unsatisfactory, not recommended -: Not tested														
Chemical Name	CPE	EPDM	Polyester	Neoprene	Nylon	Teflon	TPE	Urethane	Nitrile	Carbon Steel	Stainless Steel 304	Stainless Steel 316	Aluminum	Brass
D														
Diammonium Phosphate	-	A	C	A	B	A	-	D	A	-	-	-	-	-
Dibutyl Ether	B	C	-	D	-	A	A	D	D	A	A	A	A	A
Dibutyl Phthalate	C	B	B	D	B	A	A	D	D	A	A	A	A	A
Dichloro Benzene	D	D	D	D	A	A	D	D	D	-	A	A	-	A
Dichloro Ethylene	-	D	D	D	C	A	D	C	D	-	D	D	D	D
Diesel Fuel	A	D	B	D	A	A	D	C	A	-	A	A	-	-
Diethyl Ether	C	D	B	D	B	A	A	D	A	A	A	A	A	A
Diethyl Sebacate	C	B	A	D	-	A	A	D	D	-	A	A	-	A
Dioctyl Phthalate	C	B	B	D	B	A	A	D	D	A	A	A	A	A
E														
Ethanol	A	A	C	A	A	A	A	D	A	D	A	A	-	A
Ethyl Acetate	C	B	C	D	A	A	A	D	D	A	A	A	B	B
Ethyl Chloride	D	C	D	D	A	A	D	C	A	B	A	A	A	B
Ethylene Chlorohydrin	C	B	D	B	D	A	D	D	D	A	A	B	D	-
Ethylene Dichloride	C	D	D	D	C	A	D	D	D	-	A	A	D	-
Ethylene Glycol @ 70° F	A	A	A	A	A	A	A	B	A	B	A	A	A	A
Ethylene Oxide	D	C	A	D	A	A	-	D	D	-	-	-	-	-
F														
Fatty Acid Esters	B	D	B	B	A	A	D	D	A	B	A	A	A	B
Ferric Chloride	A	A	B	A	D	A	-	A	A	D	D	D	D	D
Ferric Nitrate	A	A	C	A	A	A	-	A	A	-	A	A	-	-
Ferric Sulfate	A	A	C	A	A	A	-	B	A	D	A	A	D	D
Ferrous Chloride	A	A	A	A	A	A	-	B	A	D	A	B	-	B
Ferrous Sulfate	A	A	C	A	A	A	-	A	A	D	A	A	A	B
Fluorine	D	D	D	D	D	D	D	D	D	-	-	-	-	-
Formaldehyde	B	A	C	B	C	A	A	D	C	A	A	A	A	D
Formic Acid	D	A	D	A	D	A	A	D	D	D	B	A	A	B
Freon 12	C	C	A	C	A	A	D	C	C	B	A	A	A	A
Freon 22	C	D	D	A	A	A	D	D	D	-	-	-	-	-
Freon 113	-	D	A	A	D	A	D	C	A	A	A	A	A	-
Freon 502	-	A	-	A	A	A	D	-	B	-	-	-	-	-
Furfural	B	B	B	C	C	A	A	D	D	-	-	-	-	-
Furfuryl Alcohol	B	B	B	D	A	A	A	D	D	B	A	A	A	A
G														
Gas, Coal	B	A	B	A	A	-	D	B	D	A	A	A	-	B
Gas, High Octane	C	D	A	D	A	A	D	C	A	-	-	-	-	-
Gasoline	B	D	A	D	A	A	-	A	B	B	A	A	A	A
Glycerine	A	A	A	A	A	A	D	D	A	B	A	A	A	B
Greases	C	D	A	D	A	A	D	A	A	A	A	A	A	A

Rating Scale	HS Corporation Hose Poly- mers									Couplings & Adapters				
Blank: No known data available A: Excellent, little or no swelling or softening B: Good, swelling or softening is moderate C: Fair, conditional service may be expected D: Unsatisfactory, not recommended -: Not tested														
Chemical Name	CPE	EPDM	Polyester	Neoprene	Nylon	Teflon	TPE	Urethane	Nitrile	Carbon Steel	Stainless Steel 304	Stainless Steel 316	Aluminum	Brass
H														
Helium	A	A	A	A	A	A	A	A	A	-	A	A	-	-
Heptane	B	D	B	B	A	A	A	B	A	A	A	A	A	A
n-Hexane	B	D	A	A	B	A	A	B	A	A	A	A	A	A
Hydrazine	B	A	D	B	D	A	-	D	B	-	-	-	-	-
Hydraulic Fluid (Petroleum)	A	D	A	B	A	A	D	B	A	A	A	A	A	A
Hydrochloric Acid, 10%	A	A	B	A	A	A	A	B	C	D	D	D	D	D
Hydrochloric Acid, 20%	A	A	C	B	A	A	A	C	C	D	D	D	D	D
Hydrocyanic Acid	B	A	D	B	D	A	A	D	C	D	A	A	A	D
Hydrofluoric Acid	A	C	D	B	C	A	D	D	D	D	D	D	D	D
Hydrogen Gas	A	A	A	A	A	A	-	A	A	D	D	D	A	-
Hydrogen Peroxide, 20%	A	C	D	D	A	A	-	D	D	D	B	A	A	D
Hydrogen Sulfide, (wet)	C	A	A	C	D	A	-	D	D	B	B	A	-	D
I														
Iodine Pentafluoride	D	D	-	D	-	A	-	D	D	D	B	B	D	-
Iodoform	D	D	-	D	-	-	-	-	-	-	-	-	-	-
Isobutyl Alcohol	B	A	-	A	-	A	-	D	B	A	A	A	A	B
Isooctane	A	D	A	B	A	B	D	A	A	A	A	A	B	A
Isopropyl Acetate	C	B	C	D	A	A	-	D	D	B	B	A	D	A
Isopropyl Alcohol	B	A	C	B	A	A	-	D	B	A	A	A	A	B
Isopropyl Ether	B	D	-	D	-	A	-	B	B	A	A	A	A	A
J														
JP - 4 Fuel	B	D	A	D	C	A	D	C	A	A	A	A	B	A
K														
Kerosene	B	D	A	D	C	A	D	C	A	A	A	A	A	A
Ketones	C	A	D	D	A	A	D	D	D	A	A	A	B	A
L														
Lacquer Solvents	C	D	D	D	A	A	-	D	D	D	B	A	A	A
Lactic Acid	A	A	D	A	A	A	-	B	A	D	B	A	D	B
Lard	B	B	B	B	A	A	A	C	A	A	A	A	A	D
Lead Acetate	B	A	-	B	A	A	-	D	B	B	B	B	D	A
Lead Nitrate	A	A	-	A	-	A	-	-	A	A	B	B	-	-
Lime Bleach	-	A	-	B	-	A	-	-	A	D	B	A	-	-
Linoleic Acid	C	D	-	D	-	A	-	-	B	D	B	A	A	-
Linseed Oil	A	C	B	B	A	A	-	B	A	A	A	A	B	B
Liquified Petroleum Gas	C	D	B	C	A	A	-	C	A	-	-	-	-	-
Lubricating Oils (Petroleum)	A	D	A	B	A	A	-	B	A	A	A	A	A	A
M														
Magnesium Chloride (Aq)	A	A	B	A	A	A	-	A	A	D	B	A	D	B
Magnesium Hydroxide (Aq)	A	A	C	A	B	A	-	D	B	A	A	A	D	D

Chemical Resistance Table

The table below is based on reliable information. Care should be taken to use this data as a guide only, and to take into account such variables as temperature, concentration and fluid contamination. All ratings are given at room temperature, unless stated otherwise. For High Temperature Applications, contact Hwaseung Corporation.

WARNING! Never use brass couplings with any ammonia based fluids.

Rating Scale	HS Corporation Hose Poly- mers									Couplings & Adapters				
Blank: No known data available A: Excellent, little or no swelling or softening B: Good, swelling or softening is moderate C: Fair, conditional service may be expected D: Unsatisfactory, not recommended -: Not tested														
Chemical Name	CPE	EPDM	Polyester	Neoprene	Nylon	Teflon	TPE	Urethane	Nitrile	Carbon Steel	Stainless Steel 304	Stainless Steel 316	Aluminum	Brass
M														
Magnesium Sulfate (Aq)	A	A	B	A	A	A	-	D	A	B	B	B	B	B
Maleic Acid	D	B	-	D	C	A	-	D	D	B	B	A	-	-
Maleic Anhydride	D	D	-	D	-	A	-	-	D	-	-	-	-	-
Mercury Chloride (Aq)	A	A	-	B	-	A	-	-	A	D	A	A	D	D
Methane	A	D	B	C	A	A	D	C	A	-	A	A	-	-
Methanol	A	A	C	B	A	A	A	D	A	A	A	A	A	B
Methyl Acetate	B	A	B	D	A	A	-	D	D	A	A	A	A	A
Methyl Acrylate	D	B	-	D	C	A	D	D	D	A	A	A	A	A
Methyl Bromide	D	D	D	D	A	A	D	D	B	A	A	A	D	A
Methyl Cellulose	C	B	-	C	-	A	A	D	C	B	B	B	B	A
Methyl Chloride	D	C	D	D	A	A	D	D	D	A	A	A	-	A
Methyl Ethyl Ketone	C	A	B	D	A	A	D	D	D	A	A	A	B	A
Methyl Isobutyl Ketone	C	B	D	D	A	A	D	D	D	A	A	A	A	A
Methyl Methacrylate	C	D	-	D	C	A	C	D	D	B	B	B	-	-
Methylene Chloride	C	C	D	D	D	A	D	D	D	A	A	A	D	A
Mineral Oil	B	D	A	B	A	A	D	A	B	A	A	A	B	A
Monochlorobenzene	D	D	C	D	B	A	D	D	D	A	A	A	D	A
N														
Naphtha	B	D	A	D	A	A	D	C	B	B	A	A	A	A
Naphthalene	D	D	C	D	A	A	D	B	D	A	A	A	-	A
Natural Gas	A	D	B	A	A	A	D	C	A	A	A	A	-	B
Neon Gas	A	A	-	A	A	A	A	A	A	-	-	-	-	-
Nickel Acetate (Aq)	B	A	-	B	-	A	-	D	B	A	A	A	A	A
Nickel Chloride (Aq)	A	A	D	A	D	A	-	D	A	A	A	A	A	A
Nickel Sulfate (Aq)	A	A	D	A	D	A	-	C	A	-	-	-	-	-
Nitric Acid (10%)	B	B	D	B	D	A	A	D	D	D	A	A	-	D
Nitric Acid (conc.)	C	D	D	D	D	A	D	D	D	D	A	A	-	D
Nitric Acid (Red Fuming)	D	D	D	D	D	A	D	D	D	D	A	A	A	D
Nitro Benzene	C	A	D	D	D	A	C	D	D	A	A	A	A	A
Nitroethane	C	B	-	C	-	A	A	D	D	A	A	A	A	A
Nitrogen	A	A	A	A	B	A	A	A	A	A	A	A	A	A
Nitrous Oxide	A	A	-	B	D	A	-	B	A	A	A	A	-	D
O														
n-Octane	C	D	A	D	B	A	B	D	B	-	-	-	-	-
Octyl Alcohol	B	C	-	B	-	A	-	D	B	A	A	A	-	B
Oleic Acid	B	D	C	C	A	A	-	B	A	B	B	A	A	B
Oleum Spirit	C	D	B	D	A	A	-	C	B	-	-	A	-	-
Oxalic Acid	C	A	D	B	A	A	A	D	B	D	B	A	B	D
Oxygen	B	A	B	A	A	A	A	A	B	A	A	A	A	A

Chemical Resistance Table

The table below is based on reliable information. Care should be taken to use this data as a guide only, and to take into account such variables as temperature, concentration and fluid contamination. All ratings are given at room temperature, unless stated otherwise. For High Temperature Applications, contact Hwaseung Corporation.

WARNING! Never use brass couplings with any ammonia based fluids.

Rating Scale	HS Corporation Hose Poly-mers										Couplings & Adapters
Blank: No known data available A: Excellent, little or no swelling or softening B: Good, swelling or softening is moderate C: Fair, conditional service may be expected D: Unsatisfactory, not recommended -: Not tested											Carbon Steel Stainless Steel 304 Stainless Steel 316 Aluminum Brass
Chemical Name	CPE	EPDM	Polyester	Neoprene	Nylon	Teflon	TPE	Urethane	Nitrile		
S											
Sodium Hypochlorite (Aq)	B	B	B	B	A	A	A	D	B	D	D
Sodium Sulfide	A	A	B	A	A	A	-	A	A	D	D
Sodium Nitrate	A	A	B	B	B	A	-	B	A	A	B
Sodium Peroxide	B	A	B	B	D	A	-	D	B	D	A
Stannic Chloride (Aq)	A	A	B	C	D	A	-	B	A	D	D
Steam, 212° F	D	A	D	D	D	A	A	D	D	A	A
Stearic Acid	B	B	B	B	A	A	A	B	D	B	A
Styrene	D	D	D	D	A	A	-	D	D	B	D
Sulfur Chloride	D	D	C	D	D	A	-	C	D	D	D
Sulfur Dioxide	C	A	D	D	D	A	-	D	D	B	A
Sulfuric Acid (Diluted)	B	A	A	A	D	A	A	D	B	D	B
Sulfuric Acid (Concentrated)	D	D	D	D	D	A	-	D	D	-	A
T											
Tannic Acid	A	A	A	A	A	A	A	A	A	B	A
Tar, Bituminous	B	D	B	C	B	A	-	B	B	A	A
Tartaric Acid	A	C	B	B	A	A	A	A	D	B	B
Tertiary Butyl Alcohol	B	B	-	B	-	A	-	D	B	-	-
Tertiary Butyl Mercaptan	D	D	-	D	-	A	-	D	D	-	-
Tetrachloroethylene	D	D	-	D	C	A	-	D	D	-	-
Tetra Hydrofuran (THF)	C	D	C	D	A	A	D	D	D	B	-
Toluene	C	D	C	D	A	A	D	D	D	A	A
Transformer Oil	A	D	-	B	B	A	-	B	A	A	A
Transmission Fluid, Type A	B	D	B	B	B	A	-	B	A	A	A
Tributyl Phosphate	-	D	C	D	B	A	-	D	D	A	-
Trichloroacetic Acid	D	B	D	D	D	A	-	D	D	-	-
Trichloroethane	D	D	D	D	B	A	D	D	D	-	-
Trichloroethylene	D	D	D	D	B	A	D	D	D	B	A
Trisodium Phosphate	A	A	A	A	A	A	-	B	A	-	-
Tung Oil	A	D	B	A	B	A	-	C	A	A	A
Turpentine	C	D	B	D	A	A	D	D	A	D	A
U											
Urea	A	A	B	A	A	A	-	B	A	A	A
Uric Acid	-	-	D	-	A	A	A	D	-	-	-
V											
Vinegar	A	A	C	B	A	A	-	D	C	D	B
Vinyl Chloride	D	D	-	D	-	A	-	-	D	B	A
W											
Water, 72° F	A	A	A	A	A	A	A	A	A	A	A
Water, 140° F	A	A	B	A	A	A	A	D	A	B	A

Rating Scale	HS Corporation Hose Poly-mers										Couplings & Adapters
Blank: No known data available A: Excellent, little or no swelling or softening B: Good, swelling or softening is moderate C: Fair, conditional service may be expected D: Unsatisfactory, not recommended -: Not tested											Carbon Steel Stainless Steel 304 Stainless Steel 316 Aluminum Brass
Chemical Name	CPE	EPDM	Polyester	Neoprene	Nylon	Teflon	TPE	Urethane	Nitrile		
W											
Water, 212° F	A	A	D	D	D	A	A	D	D	C	B
Water/Glycol solutions 72°F	A	A	A	A	A	A	A	C	A	-	-
Water/Glycol solutions 125°F	A	-	B	A	A	A	A	D	A	-	-
Water/Glycol solutions 180°F	A	-	D	A	A	A	A	D	A	-	-
Water, Soda	A	A	A	-	A	A	A	-	A	D	B
White Oil	A	D	-	B	-	A	-	A	A	-	-
Wood Oil	A	D	B	B	B	A	-	C	A	A	A
X											
Xylene	D	D	C	C	D	B	A	D	D	D	B
Z											
Zinc Chloride (Solution)	A	A	C	A	B	A	A	B	A	D	B



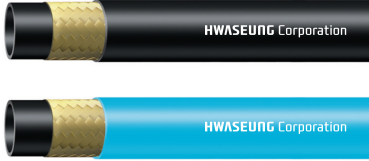
Hoses

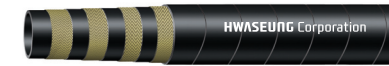
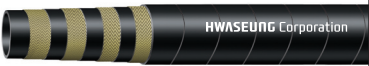
HWASEUNG Corporation

- # 10010 Hydraulic Hose(SAE 100R1 Type AT)
- # 10020 Hydraulic Hose(SAE 100R2 Type AT)
- # 21010 Hydraulic Hose(EN 853 Type 1SN / SAE 100R1 Type AT)
- # 21020 Hydraulic Hose(EN 853 Type 2SN / SAE 100R2 Type AT)
- # Pilot Compact Hydraulic Hose
- # 10016 Compact Hydraulic Hose(SAE 100R16)
- # 10017 3,000Psi Compact Hydraulic Hose(SAE 100R17)
- # 30010 Compact Hydraulic Hose(EN 857 Type 1SC)
- # 30020 Compact Hydraulic Hose(EN 857 Type 2SC)
- # 65020 Jack Hydraulic Hose(W.P = 700Bar, S.F 2 : 1)
- # 55010 Medium Pressure Hose(Textile Braid)
- # 40010 Pressure Washer Hose(1 Wire Braid)
- # High Pressure Blast Hose(4Wire Spiral)
- # 75010 & 75020 Hydraulic Air Hose
- # 10060 Textile Braid Hose(SAE 100R6)
- # 10012 4W/S Hydraulic Hose(SAE 100R12)
- # 10013 4W/S Hydraulic Hose(SAE 100R13)
- # 22041 4W/S Hydraulic Hose(EN 856 4SP)
- # 22042 4W/S Hydraulic Hose(EN 856 4SH)
- # 10040 Suction & Return Line Hose(SAE 100R4)
- # 45010 & 45020 Steam Hydraulic Hose
- # Oil Stand Hose
- # High Temperature Hydraulic Hose(1Wire Braid)
- # Big Bore Wire Braid Hose(2Wire Braid)
- # Paint Spray Hose

SYMBOL	
	Hose Inner Diameter (호스 내경)
	Hose Outer Diameter (호스 외경)
	Maximum Working Pressure (최대 사용 압력)
	Minimum Burst Pressure (최소 파열 압력)
	Minimum Bend Radius (최소 굴곡 반경)
	Weight (중량)

Hose Visual Index

1Wire Braid Hose ▶▶▶	# 10010 Hydraulic Hose 	# 21010 Hydraulic Hose 
# Pilot Compact Hydraulic Hose 	# 10017 3,000Psi Compact Hydraulic Hose 	# 30010 Compact Hydraulic Hose 
# 40010 Pressure Washer Hose 	# 75010 Hydraulic Air Hose 	# 45010 Steam Hydraulic Hose 
# Oil Stand Hose 	# High Temperature Hydraulic Hose 	2Wire Braid Hose ▶▶▶
# 21020 Hydraulic Hose 	# 10016 Compact Hydraulic Hose 	# 10017 3,000Psi Compact Hydraulic Hose 
# 30020 Compact Hydraulic Hose 	# 65020 Jack Hydraulic Hose 	# 75020 Hydraulic Air Hose 

# 45020 Steam Hydraulic Hose 	# Big Bore Wire Braid Hose 	4Wire Spiral Hose ▶▶▶
# High Pressure Blast Hose 	# 10012 4W/S Hydraulic Hose 	# 10013 4W/S Hydraulic Hose 
# 22041, 22042 4W/S Hydraulic Hose 	1Textile Briad Hose & Etc ▶▶▶	# 55010 Medium Pressure Hose 
# 10060 Textile Braid Hose 	# 10040 Suction & Return Line Hose 	# Paint Spray Hose 

10010 Hydraulic Hose (SAE 100R1 Type AT)

구조

내면층 | 내유성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 26 ~ 193Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10010-K04	1/4	6.4	0.53	13.5	193	2,750	772	11,000	3.94	100	0.22	0.15
10010-K05	5/16	7.9	0.60	15.2	175	2,500	700	10,000	4.53	115	0.27	0.18
10010-K06	3/8	9.5	0.69	17.6	158	2,250	632	9,000	4.92	125	0.34	0.23
10010-K08	1/2	12.7	0.82	20.8	140	2,000	560	8,000	7.09	180	0.42	0.28
10010-K10	5/8	15.9	0.94	23.9	105	1,500	420	6,000	8.07	205	0.51	0.34
10010-K12	3/4	19.1	1.10	28.0	88	1,250	352	5,000	9.45	240	0.66	0.44
10010-K16	1	25.4	1.42	36.0	70	1,000	280	4,000	11.81	300	0.96	0.65
10010-K20	1-1/4	31.8	1.73	43.9	44	625	176	2,500	16.54	420	1.34	0.90
10010-K24	1-1/2	38.1	1.99	50.5	35	500	140	2,000	19.69	500	1.65	1.11
10010-K32	2	50.8	2.54	64.6	26	375	104	1,500	24.80	630	2.15	1.44

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

10020 Hydraulic Hose (SAE 100R2 Type AT)

구조

내면층 | 내유성 합성고무

보강층 | 2 Wire Braid(2W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 79 ~ 350Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10020-K04	1/4	6.4	0.59	15.0	350	5,000	1,400	20,000	3.94	100	0.36	0.24
10020-K05	5/16	7.9	0.65	16.6	298	4,250	1,192	17,000	4.53	115	0.43	0.29
10020-K06	3/8	9.5	0.75	19.0	280	4,000	1,120	16,000	4.92	125	0.53	0.36
10020-K08	1/2	12.7	0.87	22.2	245	3,500	980	14,000	7.09	180	0.66	0.44
10020-K10	5/8	15.9	1.00	25.4	190	2,750	760	11,000	8.07	205	0.79	0.53
10020-K12	3/4	19.1	1.15	29.3	158	2,250	632	9,000	9.45	240	1.02	0.69
10020-K16	1	25.4	1.50	38.1	140	2,000	560	8,000	11.81	300	1.45	0.97
10020-K20	1-1/4	31.8	1.90	48.3	114	1,625	456	6,500	16.54	420	2.20	1.48
10020-K24	1-1/2	38.1	2.15	54.6	88	1,250	352	5,000	19.69	500	2.38	1.60
10020-K32	2	50.8	2.65	67.3	79	1,125	316	4,500	24.80	630	2.99	2.01

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

21010 Hydraulic Hose (EN 853 Type 1SN / SAE 100R1 Type AT)

21010 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 40 ~ 230Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
21010-K04	1/4	6.4	0.53	13.4	230	3,250	920	13,000	3.94	100	0.21	0.14
21010-K05	5/16	7.9	0.59	15.0	230	3,250	920	13,000	4.53	115	0.24	0.16
21010-K06	3/8	9.5	0.69	17.4	210	3,000	840	12,000	5.12	130	0.33	0.22
21010-K08	1/2	12.7	0.81	20.6	175	2,500	700	10,000	7.09	180	0.41	0.28
21010-K10	5/8	15.9	0.93	23.7	140	2,000	560	8,000	7.87	200	0.45	0.30
21010-K12	3/4	19.1	1.09	27.7	123	1,750	492	7,000	9.45	240	0.58	0.39
21010-K16	1	25.4	1.40	35.6	90	1,275	360	5,100	11.81	300	0.88	0.59
21010-K20	1-1/4	31.8	1.71	43.5	63	900	252	3,600	16.54	420	1.23	0.83
21010-K24	1-1/2	38.1	1.97	50.0	51	725	204	2,900	19.69	500	1.51	1.01
21010-K32	2	50.8	2.52	64.0	40	575	160	2,300	24.80	630	1.97	1.32

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

21020 Hydraulic Hose (EN 853 Type 2SN / SAE 100R2 Type AT)

21020 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 2 Wire Braid(2W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 88 ~ 410Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
21020-K04	1/4	6.4	0.59	15.0	410	5,800	1,640	23,200	3.94	100	0.33	0.22
21020-K05	5/16	7.9	0.65	16.6	370	5,250	1,480	21,000	4.53	115	0.39	0.26
21020-K06	3/8	9.5	0.75	19.0	350	5,000	1,400	20,000	5.12	130	0.50	0.34
21020-K08	1/2	12.7	0.87	22.2	300	4,250	1,200	17,000	7.09	180	0.59	0.40
21020-K10	5/8	15.9	1.00	25.4	250	3,625	1,000	14,500	7.87	200	0.71	0.48
21020-K12	3/4	19.1	1.15	29.3	217	3,125	868	12,500	9.45	240	0.86	0.58
21020-K16	1	25.4	1.50	38.1	175	2,500	700	10,000	11.81	300	1.28	0.86
21020-K20	1-1/4	31.8	1.90	48.3	158	2,250	632	9,000	16.54	420	2.02	1.36
21020-K24	1-1/2	38.1	2.15	54.6	123	1,800	492	7,200	19.69	500	2.20	1.48
21020-K32	2	50.8	2.65	67.3	88	1,300	352	5,200	24.80	630	2.85	1.92

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

Pilot Compact Hydraulic Hose

구조

내면층 | 내유성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 125Bar

※ 유연성을 극대화 시킨 제품으로 협소한 공간에 장착 가능

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
PILOT-K04	1/4	6.4	0.45	11.5	125	1,800	500	7,150	1.57	40	0.17	0.11
PILOT-K05	5/16	7.9	0.53	13.5	125	1,800	500	7,150	1.97	50	0.20	0.13
PILOT-K06	3/8	9.5	0.65	16.5	125	1,800	500	7,150	2.36	60	0.29	0.19
PILOT-K08	1/2	12.7	0.75	19.0	125	1,800	500	7,150	2.95	75	0.42	0.28

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

10016 Compact Hydraulic Hose (SAE 100R16)

10016 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 2 Wire Braid(2W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 140 ~ 350Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10016-K04	1/4	6.4	0.53	13.5	350	5,000	1,400	20,000	1.97	50	0.27	0.18
10016-K05	5/16	7.9	0.60	15.2	300	4,250	1,200	17,000	2.17	55	0.33	0.22
10016-K06	3/8	9.5	0.68	17.2	280	4,000	1,120	16,000	2.56	65	0.40	0.27
10016-K08	1/2	12.7	0.81	20.5	245	3,500	980	14,000	3.54	90	0.50	0.34
10016-K10	5/8	15.9	0.94	24.0	193	2,750	772	11,000	3.94	100	0.60	0.40
10016-K12	3/4	19.1	1.09	27.8	158	2,250	632	9,000	4.72	120	0.80	0.54
10016-K16	1	25.4	1.41	35.9	140	2,000	560	8,000	5.91	150	1.14	0.77

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

10017 3,000Psi Compact Hydraulic Hose (SAE 100R17)

구조

내면층 | 내유성 합성고무

보강층 | 1/4" ~ 5/8" 1 Wire Braid(1W/B),
3/4" ~ 1" 2 Wire Braid(2W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 210Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10017-K04	1/4	6.4	0.49	12.5	210	3,000	840	12,000	1.97	50	0.19	0.13
10017-K05	5/16	7.9	0.56	14.3	210	3,000	840	12,000	2.17	55	0.22	0.15
10017-K06	3/8	9.5	0.65	16.5	210	3,000	840	12,000	2.56	65	0.32	0.22
10017-K08	1/2	12.7	0.78	19.7	210	3,000	840	12,000	3.54	90	0.46	0.31
10017-K10	5/8	15.9	0.94	24.0	210	3,000	840	12,000	3.94	100	0.57	0.38
10017-K12	3/4	19.1	1.10	28.0	210	3,000	840	12,000	4.72	120	0.78	0.52
10017-K16	1	25.4	1.43	36.2	210	3,000	840	12,000	5.91	150	1.40	0.94

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

30010 Compact Hydraulic Hose (EN 857 Type 1SC) # 30010 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 88 ~ 225Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
30010-K04	1/4	6.4	0.49	12.4	225	3,200	900	12,800	2.95	75	0.18	0.12
30010-K05	5/16	7.9	0.54	13.6	215	3,050	860	12,200	3.35	85	0.21	0.14
30010-K06	3/8	9.5	0.62	15.8	180	2,550	720	10,200	3.54	90	0.26	0.17
30010-K08	1/2	12.7	0.74	18.9	160	2,300	640	9,200	5.12	130	0.34	0.23
30010-K10	5/8	15.9	0.88	22.3	130	1,850	520	7,400	5.91	150	0.44	0.30
30010-K12	3/4	19.1	1.02	25.8	105	1,500	420	6,000	7.09	180	0.54	0.36
30010-K16	1	25.4	1.32	33.5	88	1,250	352	5,000	9.06	230	0.77	0.52

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

30020 Compact Hydraulic Hose (EN 857 Type 2SC)

30020 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 2 Wire Braid(2W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 165 ~ 400Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
30020-K04	1/4	6.4	0.53	13.5	400	5,700	1,600	22,800	2.95	75	0.27	0.18
30020-K05	5/16	7.9	0.60	15.2	350	5,000	1,400	20,000	3.35	85	0.33	0.22
30020-K06	3/8	9.5	0.68	17.2	330	4,700	1,320	18,800	3.54	90	0.40	0.27
30020-K08	1/2	12.7	0.81	20.5	275	3,950	1,100	15,800	5.12	130	0.50	0.34
30020-K10	5/8	15.9	0.94	24.0	250	3,600	1,000	14,400	6.69	170	0.60	0.40
30020-K12	3/4	19.1	1.09	27.8	215	3,100	860	12,400	7.87	200	0.80	0.54
30020-K16	1	25.4	1.41	35.9	165	2,350	660	9,400	9.84	250	1.14	0.77

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

65020 Jack Hydraulic Hose (W.P = 700Bar, S.F 2 : 1)

구조

내면층 | 내유성 합성고무

보강층 | 2 Wire Braid(2W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

유압 자키 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
65020-K04	1/4	6.4	0.59	15.1	700	10,000	1,400	20,000	3.94	100	0.36	0.24
65020-K06	3/8	9.5	0.74	18.9	700	10,000	1,400	20,000	5.12	130	0.53	0.36

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.



55010 Medium Pressure Hose (Textile Braid)

구조

내면층 | 내유성 합성고무

보강층 | 1 Textile Braid(1T/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |
-40℃ ~ +100℃(-40°F ~ +212°F)

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 35Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
55010-K04	1/4	6.4	0.52	13.3	35	500	140	2,000	2.56	65	0.15	0.10
55010-K05	5/16	7.9	0.58	14.8	35	500	140	2,000	2.76	70	0.17	0.11
55010-K06	3/8	9.5	0.64	16.2	35	500	140	2,000	2.95	75	0.18	0.12
55010-K08	1/2	12.7	0.75	19.0	35	500	140	2,000	3.94	100	0.22	0.15
55010-K10	5/8	15.9	0.91	23.0	35	500	140	2,000	5.12	130	0.31	0.21
55010-K12	3/4	19.1	1.08	27.5	35	500	140	2,000	5.91	150	0.42	0.28
55010-K16	1	25.4	1.36	34.5	35	500	140	2,000	7.87	200	0.58	0.39

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

40010 Pressure Washer Hose (1 Wire Braid)

구조

내면층 | 내유 및 내수성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

고압 세척용 사용 Line |
-40℃ ~ +100℃(-40°F ~ +212°F)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 210Bar

Cover Color

Black Blue

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
40010-K04	1/4	6.4	0.49	12.5	210	3,000	840	12,000	1.97	50	0.19	0.13
40010-K05	5/16	7.9	0.56	14.3	210	3,000	840	12,000	2.17	55	0.22	0.15
40010-K06	3/8	9.5	0.65	16.5	210	3,000	840	12,000	2.56	65	0.32	0.22
40010-K08	1/2	12.7	0.78	19.7	210	3,000	840	12,000	3.54	90	0.46	0.31

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

High Pressure Blast Hose (4Wire Spiral)

구조

내면층 | 내유 및 내수성 합성고무

보강층 | 4 Wire Spiral(4W/S)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

용도 |

Very high pressure hose for water scaling and jetting system.

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F)

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

※ 최대 사용 압력 범위 : 1,100 ~ 1,250Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
HPBH-K04	1/4	6.4	0.69	17.6	1250	17,900	3,125	44,600	7.87	200	0.62	0.42
HPBH-K06	3/8	9.5	0.83	21.0	1250	17,900	3,125	44,600	8.27	210	0.92	0.62
HPBH-K08	1/2	12.7	0.96	24.5	1100	15,700	2,750	39,300	9.06	230	1.22	0.82
HPBH-K12	3/4	19.1	1.26	32.0	1100	15,700	2,750	39,300	9.84	250	1.86	1.25

75010 & 75020 Hydraulic Air Hose

구조

내면층 | 합성고무

보강층 | 1 Wire Braid or 2 Wire Braid(1W/B or 2W/B)

외면층 | 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

용도 |

광산, 토목, 건설현장 등 공압 공급 라인

사용 온도 |

-40℃ ~ +70℃(-40°F ~ +160°F)

Cover Color

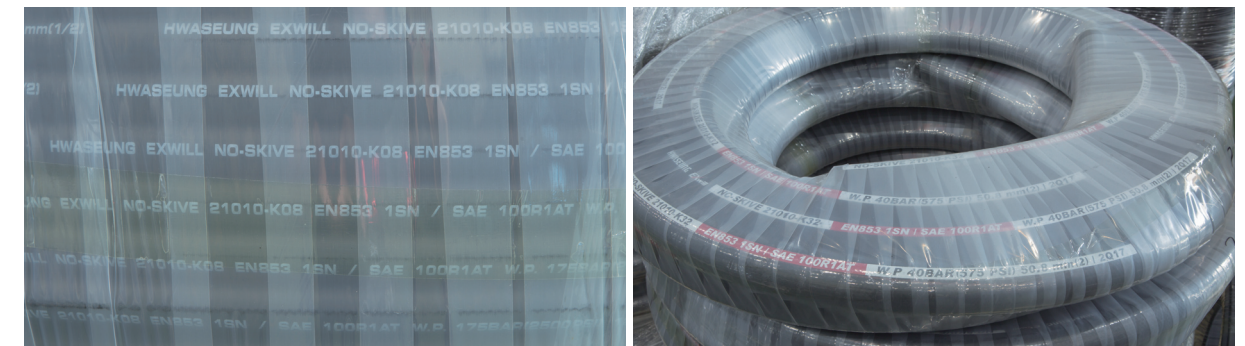
Black Yellow

75010 : 1 Wire Braid Air Hose

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
75010-K32	2	50.8	2.47	62.8	35	500	140	2,000	24.80	630	1.90	1.28

75020 : 2 Wire Braid Air Hose

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
75020-K32	2	50.8	2.54	64.4	45	650	180	2,600	24.80	630	2.10	1.41



10060 Textile Braid Hose (SAE 100R6)

구조

내면층 | 내유성 합성고무

보강층 | 1 Textile Braid(1T/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |
-40℃ ~ +100℃(-40°F ~ +212°F)

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 20 ~ 28Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10060-K04	1/4	6.4	0.50	12.7	28	400	112	1,600	2.56	65	0.13	0.09
10060-K05	5/16	7.9	0.56	14.3	28	400	112	1,600	2.95	75	0.15	0.10
10060-K06	3/8	9.5	0.63	15.9	28	400	112	1,600	2.95	75	0.18	0.12
10060-K08	1/2	12.7	0.78	19.8	28	400	112	1,600	3.94	100	0.25	0.17
10060-K10	5/8	15.9	0.91	23.0	25	350	100	1,400	5.12	130	0.31	0.21
10060-K12	3/4	19.1	1.03	26.2	20	300	80	1,100	5.91	150	0.36	0.24

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

10012 4W/S Hydraulic Hose (SAE 100R12)

10012 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 4 Wire Spiral(4W/S)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |
-40℃ ~ +125℃(-40°F ~ +257°F)

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 175 ~ 280Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10012-K12	3/4	19.1	1.21	30.7	280	4,000	1,120	16,000	9.45	240	1.47	0.99
10012-K16	1	25.4	1.50	38.0	280	4,000	1,120	16,000	11.81	300	2.00	1.34
10012-K20	1-1/4	31.8	1.85	47.0	210	3,000	840	12,000	16.54	420	2.86	1.92
10012-K24	1-1/2	38.1	2.11	53.5	175	2,500	700	10,000	19.69	500	3.24	2.18
10012-K32	2	50.8	2.63	66.7	175	2,500	700	10,000	24.80	630	4.80	3.23

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

10013 4W/S Hydraulic Hose (SAE 100R13)

10013 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 4 Wire Spiral(4W/S)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |
-40℃ ~ +125℃(-40°F ~ +257°F)

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 350Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10013-K12	3/4	19.1	1.26	32.1	350	5,000	1,400	20,000	9.45	240	1.68	1.13
10013-K16	1	25.4	1.52	38.7	350	5,000	1,400	20,000	11.81	300	2.24	1.51

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

22041 4W/S Hydraulic Hose (EN 856 4SP)

22041 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 4 Wire Spiral(4W/S)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |
-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 350 ~ 450Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
22041-K06	3/8	9.5	0.84	21.4	450	6,500	1,800	26,000	7.09	180	0.78	0.52
22041-K08	1/2	12.7	0.97	24.6	420	6,000	1,680	24,000	9.06	230	0.93	0.62
22041-K10	5/8	15.9	1.11	28.2	350	5,000	1,400	20,000	9.84	250	1.17	0.79

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

22042 4W/S Hydraulic Hose (EN 856 4SH)

22042 SHAR (Super High Abrasion Resistant)

구조

내면층 | 내유성 합성고무

보강층 | 4 Wire Spiral(4W/S)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +100℃(-40°F ~ +212°F) / 단속 사용시, +125℃(+257°F)까지 사용 가능

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |

+85℃ 이하(+185°F 이하)

Air 사용 Line |

-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 250 ~ 420Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
22042-K12	3/4	19.1	1.27	32.2	420	6,000	1,680	24,000	11.02	280	1.53	1.03
22042-K16	1	25.4	1.52	38.7	380	5,500	1,520	22,000	13.39	340	2.06	1.38
22042-K20	1-1/4	31.8	1.79	45.5	350	5,000	1,400	20,000	18.11	460	2.46	1.65
22042-K24	1-1/2	38.1	2.11	53.5	300	4,300	1,200	17,200	22.05	560	3.35	2.25
22042-K32	2	50.8	2.68	68.1	250	3,600	1,000	14,400	27.56	700	4.55	3.06

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

10040 Suction & Return Line Hose (SAE 100R4)

구조

내면층 | 내유성 합성고무

보강층 | 고강도 스파이럴 합성섬유 + 나선형 경강선

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |

-40℃ ~ +125℃(-40°F ~ +257°F)

Vacuum |

737mmHg / 29inHg

※ 최대 사용 압력 범위 : 7 ~ 17Bar

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
10040-K16	1	25.4	1.50	38.1	17	250	68	1,000	5.91	150	0.99	0.67
10040-K20	1-1/4	31.8	1.75	44.5	14	200	56	800	7.87	200	1.19	0.80
10040-K24	1-1/2	38.1	2.00	50.8	10	150	40	600	9.84	250	1.42	0.95
10040-K32	2	50.8	2.52	63.9	7	100	28	400	11.81	300	1.93	1.30

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

45010 & 45020 Steam Hydraulic Hose

구조

내면층 | 내열성 합성고무

보강층 | 1 Wire Braid or 2 Wire Braid(1W/B or 2W/B)

외면층 | 내열, 오존, 내후성 합성고무



용도 및 사용 온도

용도 | 고압 증기 및 예열 공급 라인

제품 사용 온도 | -30℃ ~ +210℃(-20℉ ~ +410℉) /

※ 150℃ 이상의 온도에서는 단속적으로 사용 권장

Cover Color

Black Red

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft

45010 : 1 Wire Braid Steam Hose

45010-K12	3/4	19.1	1.18	30.0	14	200	140	2,000	9.45	240	0.90	0.60
45010-K16	1	25.4	1.44	36.5	14	200	140	2,000	11.81	300	1.20	0.81
45010-K20	1-1/4	31.8	1.83	46.5	14	200	140	2,000	16.54	420	1.60	1.08
45010-K24	1-1/2	38.1	2.01	51.0	14	200	140	2,000	19.69	500	2.00	1.34
45010-K32	2	50.8	2.62	66.5	14	200	140	2,000	24.80	630	2.40	1.61

45020 : 2 Wire Braid Steam Hose

45020-K12	3/4	19.1	1.22	31.0	17.5	250	175	2,500	9.45	240	1.20	0.81
45020-K16	1	25.4	1.42	36.0	17.5	250	175	2,500	11.81	300	1.50	1.01
45020-K20	1-1/4	31.8	1.91	48.5	17.5	250	175	2,500	16.54	420	2.10	1.41
45020-K24	1-1/2	38.1	2.19	55.5	17.5	250	175	2,500	19.69	500	2.50	1.68
45020-K32	2	50.8	2.68	68.0	17.5	250	175	2,500	24.80	630	3.10	2.08

■ 포화증기압과 온도 대조표

압력	온도	압력	온도	압력	온도	압력	온도	압력	온도	압력	온도	압력	온도
kg/cm ²	℃	kg/cm ²	℃	kg/cm ²	℃	kg/cm ²	℃	kg/cm ²	℃	kg/cm ²	℃	kg/cm ²	℃
0.1	45.45	0.7	89.45	3.0	132.9	7.0	164.2	12	187.1	20	211.4	40	249.1
0.2	59.66	1.0	99.09	4.0	142.9	8.0	169.6	14	194.1	25	22.9		
0.3	68.67	1.5	110.8	5.0	151.1	9.0	174.5	16	200.4	30	232.2		
0.5	80.86	2.0	119.6	6.0	158.1	10	179.0	18	206.1	35	241.4		



Oil Stand Hose

구조

내면층 | 내유성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

용도 |

가솔린(휘발유) 또는 디젤유(경유) 이송

제품 사용 온도 |

-40℃ ~ +93℃(-40℉ ~ +200℉)

Cover Color

Black Yellow Blue Green

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft

OSH-K12	3/4	19.1	1.10	28.0	10	150	40	600	3.94	100	0.60	0.40
OSH-K16	1	25.4	1.38	35.0	10	150	40	600	5.12	130	0.80	0.54



High Temperature Hydraulic Hose (1Wire Braid)

구조

내면층 | 특수 내 고온성 합성고무

보강층 | 1 Wire Braid(1W/B)

외면층 | 내유, 내 고온, 오존, 내후성 합성고무



용도 및 사용 온도

광물성 작동유 및 윤활유 사용 Line |
-40℃ ~ +150℃(-40°F ~ +302°F)

물, 물+글리콜, 물+오일 에멀전 작동유 사용 Line |
+85℃ 이하(+185°F 이하)

Air 사용 Line |
-40℃ ~ +70℃(-40°F ~ +158°F)

※ 최대 사용 압력 범위 : 26 ~ 193Bar

Cover Color

Black Blue

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
HTH-K04	1/4	6.4	0.53	13.5	193	2,750	772	11,000	3.94	100	0.22	0.15
HTH-K05	5/16	7.9	0.60	15.2	175	2,500	700	10,000	4.53	115	0.27	0.18
HTH-K06	3/8	9.5	0.69	17.6	158	2,250	632	9,000	4.92	125	0.34	0.23
HTH-K08	1/2	12.7	0.82	20.8	140	2,000	560	8,000	7.09	180	0.42	0.28
HTH-K10	5/8	15.9	0.94	23.9	105	1,500	420	6,000	8.07	205	0.51	0.34
HTH-K12	3/4	19.1	1.10	28.0	88	1,250	352	5,000	9.45	240	0.66	0.44
HTH-K16	1	25.4	1.42	36.0	70	1,000	280	4,000	11.81	300	0.96	0.65
HTH-K20	1-1/4	31.8	1.73	43.9	44	625	176	2,500	16.54	420	1.34	0.90
HTH-K24	1-1/2	38.1	1.99	50.5	35	500	140	2,000	19.69	500	1.65	1.11
HTH-K32	2	50.8	2.54	64.6	26	375	104	1,500	24.80	630	2.15	1.44

공기 및 Gas 등의 기체를 10Bar 이상의 압력으로 사용할 경우에는 외면고무에 Pin-Prick을 하여야 하며, 20Bar 이상의 압력으로 사용할 경우에는 내가스 투과성이 우수한 수지 호스를 적용하는 것이 바람직 합니다.

Big Bore Wire Braid Hose (2Wire Braid)

구조

내면층 | 특수 설계된 합성고무

보강층 | 2 Wire Braid(2W/B)

외면층 | 오존, 내후 및 내마모성 합성고무



용도 및 사용 온도

용도 |
유체 이송용(Oil, Air, Water, Material 등)

제품 사용 온도 |
-30℃ ~ +80℃(-20°F ~ +180°F)

Part No.												
	inch	mm	inch	mm	bar	psi	bar	psi	inch	mm	kg/m	lb/ft
BBWB-2.5	2-1/2	63.5	3.13	79.5	52.5	750	158	2,250	25.59	650		
BBWB-3	3	76.2	3.62	92.0	45.5	650	137	1,950	29.53	750		
BBWB-4	4	101.6	4.69	119.0	42	600	126	1,800	39.37	1,000		
BBWB-5	5	127.0	5.71	145.0	28	400	84	1,200	51.18	1,300		
BBWB-6	6	152.4	6.69	170.0	21	300	63	900	59.06	1,500		



Paint Spray Hose

Product Specifications

- Application** | • Light weight, excellent flexibility for operations.
• Superior safety with antistatic properties.
• Excellent resistance to high pressure and safe construction for the applications.

Tube | White & black high grade of chemical resistant nylon(Polyamid)

- Reinforcement** | • 1 Wire braid
• 1 Textile braid + 1 Wire braid
• 2 Textile braid + 1 Wire braid

Cover | Abrasion, oil, weather & ozone resistant poly urethane

Temperature | -40°C ~ 100°C



Part No.							
	inch	mm	mm	bar	bar	mm	g/m
▶ 1 Wire braid							※ S.F3 : 1
HSPW 04	3/16"	4.7	9.6	460	1,380	35	130
HSPW 06	1/4"	6.3	11.7	430	1,290	45	160
HSPW 09	3/8"	9.4	15.5	330	990	60	240
▶ 1 Textile braid + 1 Wire braid							※ S.F3 : 1
HSPTW 06	1/4"	6.3	12.8	430	1,290	50	230
HSPTW 09	3/8"	9.5	16.8	430	1,290	70	310
▶ 1 Textile(Aramid) braid + 1 Wire braid							※ S.F4 : 1
HSPAW 04	3/16"	4.7	11.2	500	2,000	50	170
HSPAW 06	1/4"	6.3	12.8	500	2,000	65	210
▶ 2 Textile(Aramid + P.E) braid + 1 Wire braid							※ S.F4 : 1
HSPTW 09	3/8"	9.4	17.3	500	2,000	90	360

Fittings

HWASEUNG Corporation



Fitting Nomenclature
09 Series
12 Series
13 Series
CT Series
CA Series

Fitting Nomenclature

C	/	1	/	G2	/	13	-	16	-	16	S	100
1		2		3		4		5		6	7	8

※ **Example Description** ① Crimping Type ② Straight ③ SAE Flange 62 Code ④ SAE 100R13 Hose
 ⑤ Connection Size 1" ⑥ Hose Size 1" ⑦ Stainless Steel ⑧ Special Drop Length 100mm

1. Type _ C : Crimping / Permanent Type with No-Skive Hose
 NS : No-Skive Type Shell

S : Crimping Type with Skive Hose
 SS : Skive Type Shell

2. Shape _ 1 : Straight 2 : 22.5° Elbow 3 : 30° Elbow 4 : 45° Elbow
 6 : 60° Elbow 7 : 67.5° Elbow 9 : 90° Elbow

3. Head Configuration or Connection Type _

C : JIS B8363 60° Cone with PF Thread Nut

F : JIS B8363 30° Flare with PF Thread Nut

M : JIS B8363 30° Flare with Metric Thread Nut

X : SAE J516 37° Flare(74° Cone) with UN(F) Thread

Y : Male JIC 37°

R : SAE J516 O-Ring Face Seal with UN(F) Thread

L : SAE J516 Long O-Ring Face with UN(F) Thread

G1 : SAE J518 Flange 61 Code

G2 : SAE J518 Flange 62 Code

P : PT Male Pipe Taper Thread

N : NPTF Male Pipe Taper Thread

FF : Male JIS/BSP Parallel Pipe Rigid Straight(30° Flare)

4. Hose Series _

09 : SAE 100R1, 2, 3, 9 / EN853 1SN, 2SN

12 : SAE 100R12

13 : SAE 100R13

CT : For Excavator Pilot Line

CA : 420Bar Heavy Duty

5. Connect Size / 6. Hose Size _

Dash Size	Hose I.D	JIS B8363 PT/PF Thread	NPT(F) Thread	SAE J514 37° Flare UNF	SAE J1453 ORFS	SAE J518 Flange 61 / 62	JIS B8363 Metric Thread
-2	1/8"	1/8"-28	1/8"-27	5/16"-24			
-3	3/16"			3/8"-24			
-4	1/4"	1/4"-19	1/4"-18	7/16"-20	9/16"-18		M14 X 1.5
-5	5/16"			1/2"-20			
-6	3/8"	3/8"-19	3/8"-18	9/16"-18	11/16"-16		M18 X 1.5
-8	1/2"	1/2"-14	1/2"-14	3/4"-16	13/16"-16	30.2 / 31.8	M22 X 1.5
-10	5/8"			7/8"-14	1"-14		
-12	3/4"	3/4"-14	3/4"-14	1-1/16"-12	1-3/16"-12	38.1 / 41.3	M27 X 2.0
-14	7/8"			1-3/16"-12			
-16	1"	1"-11	1"-11.5	1-5/16"-12	1-7/16"-12	44.5 / 47.6	M33 X 2.0
-20	1-1/4"	1-1/4"-11	1-1/4"-11.5	1-5/8"-12	1-11/16"-12	50.8 / 54.0	M42 X 2.0
-24	1-1/2"	1-1/2"-11	1-1/2"-11.5	1-7/8"-12	2"-12	60.3 / 63.5	
-32	2"	2"-11	2"-11.5	2-1/2"-12		71.4 / 79.4	

Tube Size	6	8	10	12	14	15	16	18	20	22	25	28	30	35	38	42
DIN 2353 24° Cone Heavy	M14X1.5	M16X1.5	M18X1.5	M20X1.5	M22X1.5		M24X1.5		M30X2.0		M36X2.0		M42X2.0		M52X2.0	
DIN 2353 24° Cone Light	M12X1.5	M14X1.5	M16X1.5	M18X1.5		M22X1.5		M26X1.5		M30X2.0		M36X2.0		M42X2.0		M52X2.0

7. Material _

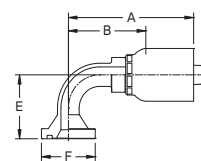
Blank : Carbon Steel

S : Stainless Steel

B : Brass

8. Option _

Drop Length : Actual Drop Length ex) D100, D125



B : Cut-Off Allowance

F : Flange Dia

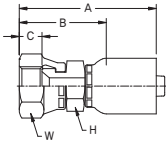
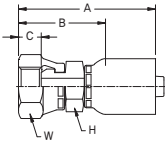
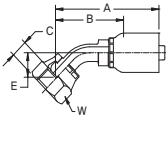
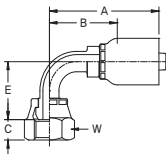
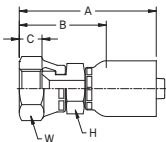
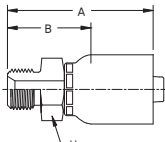
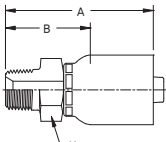
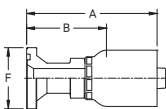
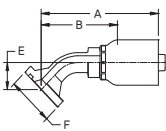
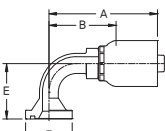
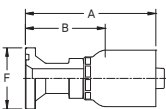
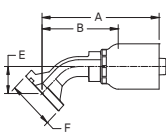
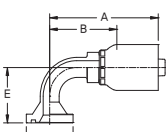
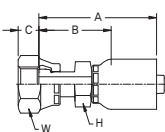
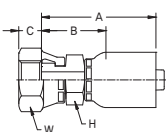
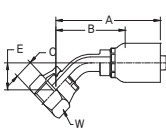
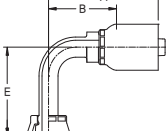
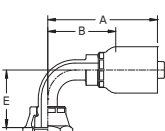
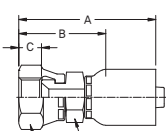
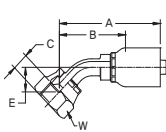
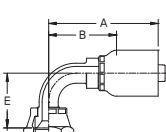
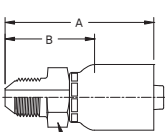
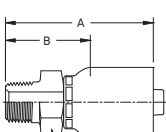
E : Drop Length

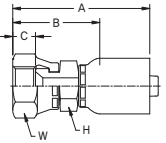
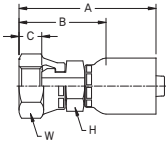
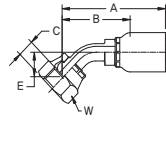
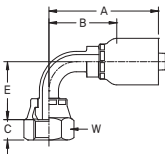
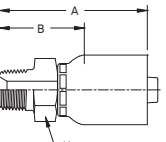
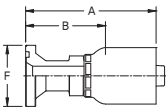
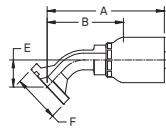
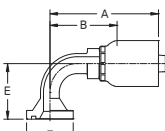
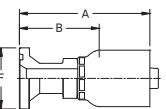
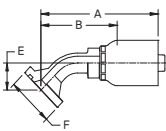
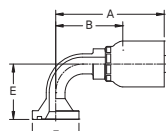
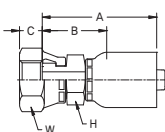
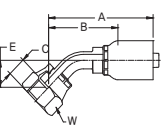
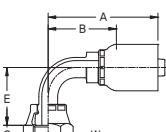
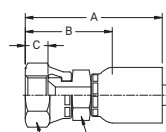
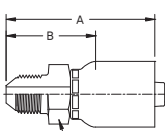
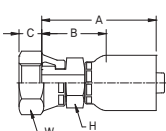
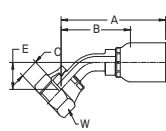
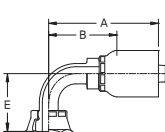
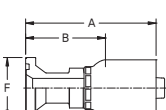
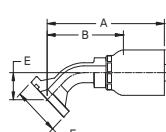
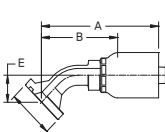
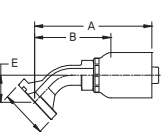
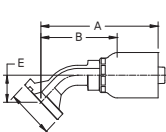
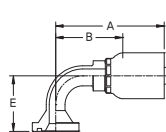


Fittings Visual Index

09 Series	C1F09 (30° Flare)	C1C09 (60° Flare)	C4C09 45° Elbow (60° Cone)
C9C09 90° Elbow (60° Cone)	C1M09 (30° Flare)	C1FF09 (30° Flare)	C1P09
C1G209 (Flange)	C4G209 (Flange)	C9G209 (Flange)	C1G109 (Flange)
C4G109 (Flange)	C9G109 (Flange)	C1L09 (O-Ring)	C1R09 (O-Ring)
C4R09 (O-Ring)	C9R09 D (O-Ring)	C9R09 (O-Ring)	C4X09 (O-Ring)
C9X09	C1X09	C1Y09	C1N09

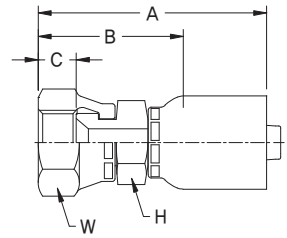
Fittings Visual Index

12 Series	C1F12 (30°Flare) 	C1C12 (60°Cone) 	C4C12 (60°Cone) 
C9C12 (60°Cone) 	C1M12 (30°Flare) 	C1FF12 (30°Flare) 	C1P12 
C1G212 	C4G212 (Flange) 	C9G212 (Flange) 	C1G112 (Flange) 
C4G112 (Flange) 	C9G112 (Flange) 	C1L12 (O-Ring) 	C1R12 (O-Ring) 
C4R12 (O-Ring) 	C9R12 D (O-Ring) 	C9R12 (O-Ring) 	C1X12 
C4X12 	C9X12 	C1Y12 	C1N12 

13 Series	C1F13 (30°Flare) 	C1C13 (60°Cone) 	C4C13 (60°Cone) 
C9C13 (60°Cone) 	C1P13 	C1G213 (Flange) 	C4G213 (Flange) 
C9G213 (Flange) 	C1G113 (Flange) 	C4G113 (Flange) 	C9G113 (Flange) 
C1R13 (O-Ring) 	C4R13 (O-Ring) 	C9R13 (O-Ring) 	C1X13 
C1Y13 	CT Series	C1RCT (O-Ring) 	C4RCT (O-Ring) 
C9RCT (O-Ring) 	CA Series	C1CA13 (Flange) 	C2CA13 (Flange) 
C3CA13 (Flange) 	C4CA13 (Flange) 	C6CA13 / C7CA13 (Flange) 	C9CA13 (Flange) 

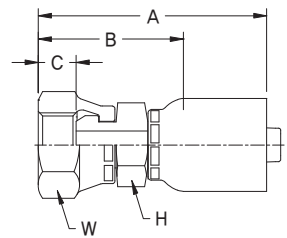
09 Series

C1F09 Female JIS/BSP Parallel Pipe Swivel Straight (30° Flare)



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	PF	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1F09-4-4	1/4X19	1/4	2.01	51	19	19	1.26	32	0.35	8.9
C1F09-6-4	3/8X19	1/4	2.16	55	24	22	1.41	36	0.39	9.9
C1F09-6-6	3/8X19	3/8	2.43	62	24	22	1.40	36	0.39	9.9
C1F09-8-8	1/2X14	1/2	2.78	71	27	27	1.52	39	0.47	11.9
C1F09-12-10	3/4X14	5/8	3.16	80	36	36	1.72	44	0.50	12.7
C1F09-12-12	3/4X14	3/4	3.17	80	36	36	1.73	44	0.50	12.7
C1F09-16-16	1X11	1	3.64	92	41	41	2.02	51	0.58	14.7
C1F09-20-20	1-1/4X11	1-1/4	3.98	101	50	50	2.29	58	0.60	15.2

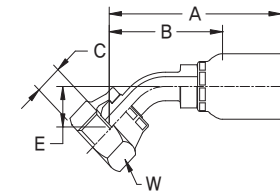
C1C09 Female JIS/BSP Parallel Pipe Swivel Straight (60° Cone)



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	PF	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1C09-4-4	1/4X19	1/4	2.07	53	19	19	1.32	33	0.23	5.8
C1C09-6-4	3/8X19	1/4	2.17	55	22	22	1.42	36	0.27	6.9
C1C09-6-5	3/8X19	5/16	2.25	57	22	22	1.49	38	0.27	6.9
C1C09-6-6	3/8X19	3/8	2.44	62	22	22	1.41	36	0.27	6.9
C1C09-8-6	1/2X14	3/8	2.57	65	27	27	1.54	39	0.35	8.9
C1C09-8-8	1/2X14	1/2	2.79	71	27	27	1.54	39	0.35	8.9
C1C09-12-8	3/4X14	1/2	3.02	77	36	36	1.77	45	0.38	9.7
C1C09-12-10	3/4X14	5/8	3.22	82	36	36	1.78	45	0.38	9.7
C1C09-12-12	3/4X14	3/4	3.22	82	36	36	1.79	45	0.38	9.7
C1C09-16-12	1X11	3/4	3.42	87	41	41	1.98	50	0.46	11.7
C1C09-16-16	1X11	1	3.73	95	41	41	2.11	54	0.46	11.7
C1C09-20-20	1-1/4X11	1-1/4	4.05	103	50	50	2.36	60	0.48	12.2
C1C09-24-24	1-1/2X11	1-1/2	3.91	99	60	60	2.54	65	0.48	12.2
C1C09-32-24	2X11	1-1/2	4.09	104	70	70	2.72	69	0.58	14.7
C1C09-32-32	2X11	2	4.49	114	70	70	2.71	69	0.58	14.7

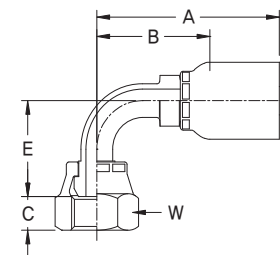
09 Series

C4C09 Female JIS/BSP Parallel Pipe Swivel 45° Elbow (60° Cone)



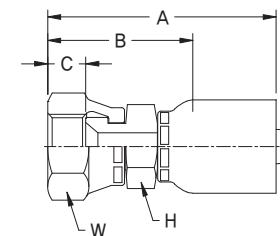
Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	PF	inch	inch	mm	mm	inch	mm	inch	mm	inch	mm
C4C09-4-4	1/4X19	1/4	2.20	56	19	1.45	37	0.63	16	0.23	5.8
C4C09-6-6	3/8X19	3/8	2.57	65	24	1.55	39	0.67	17	0.27	6.9
C4C09-8-8	1/2X14	1/2	3.06	78	24	1.80	46	0.83	21	0.35	8.9
C4C09-12-12	3/4X14	3/4	3.82	97	27	2.38	61	1.02	26	0.38	9.7
C4C09-16-16	1X11	1	4.80	122	36	3.18	81	1.30	33	0.46	11.7
C4C09-20-20	1-1/4X11	1-1/4	5.86	149	36	4.17	106	1.81	46	0.48	12.2
C4C09-24-24	1-1/2X11	1-1/2	6.33	161	50	4.96	126	2.09	53	0.48	12.2

C9C09 Female JIS/BSP Parallel Pipe Swivel 90° Elbow (60° Cone)



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	PF	inch	inch	mm	mm	inch	mm	inch	mm	inch	mm
C9C09-4-4	1/4X19	1/4	1.78	45	19	1.03	26	1.14	29	0.23	5.8
C9C09-6-6	3/8X19	3/8	2.20	56	22	1.18	30	1.30	33	0.27	6.9
C9C09-8-6	1/2X14	3/8	2.45	62	27	1.42	36	1.61	41	0.35	8.9
C9C09-8-8	1/2X14	1/2	2.70	69	27	1.44	37	1.61	41	0.35	8.9
C9C09-12-12	3/4X14	3/4	3.49	89	36	2.05	52	2.17	55	0.38	9.7
C9C09-16-16	1X11	1	4.70	119	41	3.08	78	2.89	74	0.46	11.7
C9C09-20-20	1-1/4X11	1-1/4	5.10	129	50	3.41	87	3.48	89	0.48	12.2
C9C09-24-24	1-1/2X11	1-1/2	5.57	141	60	4.20	107	4.33	110	0.48	12.2

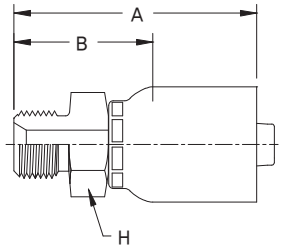
C1M09 Female JIS/Metric Swivel Straight (30° Flare)



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	Metric	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1M09-4-4	M14X1.5	1/4	2.06	52	19	19	1.31	33	0.40	10.2
C1M09-6-4	M18X1.5	1/4	2.17	55	24	24	1.42	36	0.40	10.2
C1M09-6-6	M18X1.5	3/8	2.44	62	24	24	1.41	36	0.40	10.2
C1M09-8-8	M22X1.5	1/2	2.82	72	27	27	1.56	40	0.51	13.0
C1M09-12-12	M27X2	3/4	3.16	80	36	36	1.72	44	0.49	12.4
C1M09-16-16	M33X2	1	3.57	91	41	41	1.95	50	0.51	13.0
C1M09-20-20	M42X2	1-1/4	3.95	100	50	50	2.26	57	0.57	14.5

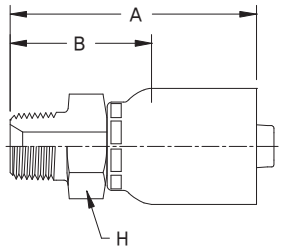
09 Series

C1FF09 Male JIS/BSP Parallel Pipe-Rigid Straight (30° Flare)



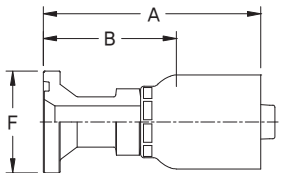
Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PF	inch	inch	mm	mm	inch	mm
1FF09-4-4	1/4X19	1/4	1.93	49	19	1.18	30
1FF09-6-6	3/8X19	3/8	2.29	58	22	1.26	32
1FF09-8-8	1/2X14	1/2	2.65	67	27	1.39	35
1FF09-12-12	3/4X14	3/4	3.02	77	36	1.58	40
1FF09-16-16	1X11	1	3.45	88	41	1.83	46
1FF09-20-20	1-1/4X11	1-1/4	3.77	96	50	2.08	53
1FF09-24-24	1-1/2X11	1-1/2	3.58	91	60	2.21	56

C1P09 Male JIS/BSP Taper Pipe-Rigid Straight



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PT	inch	inch	mm	mm	inch	mm
C1P09-4-4	1/4X19	1/4	1.92	49	19	1.17	30
C1P09-6-4	3/8X19	1/4	1.98	50	22	1.23	31
C1P09-6-6	3/8X19	3/8	2.24	57	22	1.22	31
C1P09-8-8	1/2X14	1/2	2.68	68	27	1.42	36
C1P09-12-12	3/4X14	3/4	2.98	76	36	1.54	39
C1P09-16-16	1X11	1	3.48	88	41	1.86	47
C1P09-20-20	1-1/4X11	1-1/4	3.79	96	50	2.10	53
C1P09-24-24	1-1/2X11	1-1/2	3.43	87	60	2.06	52
C1P09-32-32	2X11	2	4.20	107	70	2.42	61

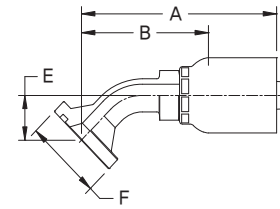
C1G209 SAE Code 62 Flange Straight



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1G209-12-12	3/4	3/4	4.12	105	2.68	68	1.63	41.3
C1G209-16-16	1	1	4.81	122	3.19	81	1.88	47.6
C1G209-20-20	1-1/4	1-1/4	5.01	127	3.32	84	2.13	54.0
C1G209-24-24	1-1/2	1-1/2	6.34	161	4.15	105	2.50	63.5
C1G209-32-32	2	2	7.16	182	4.96	126	3.13	79.4

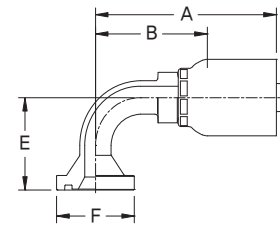
09 Series

C4G209 SAE Code 62 Flange 45° Elbow



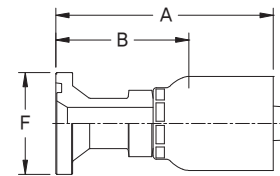
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C4G209-12-12	3/4	3/4	3.89	99	2.45	62	1.63	41.3	1.06	27
C4G209-16-16	1	1	4.76	121	3.14	80	1.88	47.6	1.26	32
C4G209-20-20	1-1/4	1-1/4	5.61	142	3.92	100	2.13	54.0	1.50	38
C4G209-24-24	1-1/2	1-1/2	5.92	150	4.55	115	2.50	63.5	1.73	44

C9G209 SAE Code 62 Flange 90° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C9G209-12-12	3/4	3/4	3.51	89	2.07	53	1.63	41.3	2.28	58
C9G209-16-12	1	3/4	3.52	89	2.08	53	1.88	47.6	2.28	58
C9G209-16-16	1	1	4.28	109	2.66	67	1.88	47.6	2.76	70
C9G209-20-20	1-1/4	1-1/4	5.18	132	3.50	89	2.13	54.0	3.54	90
C9G209-24-24	1-1/2	1-1/2	5.44	138	4.07	103	2.50	63.5	4.09	104
C9G209-32-32	2	2	7.11	181	5.33	135	3.13	79.4	4.88	124

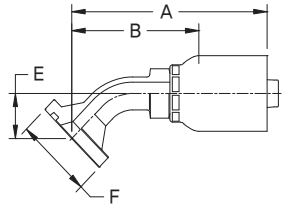
C1G109 SAE Code 61 Flange Straight



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1G109-8-8	1/2	1/2	3.48	88	2.22	56	1.19	30.2
C1G109-12-12	3/4	3/4	3.86	98	2.42	61	1.50	38.1
C1G109-12-8	3/4	1/2	2.46	62	1.20	31	1.50	38.1
C1G109-16-12	1	3/4	2.74	70	1.31	33	1.75	44.5
C1G109-16-16	1	1	4.25	108	2.63	67	1.75	44.5
C1G109-20-16	1-1/4	1	3.20	81	1.58	40	2.00	50.8
C1G109-20-20	1-1/4	1-1/4	4.70	119	3.01	76	2.00	50.8
C1G109-24-20	1-1/2	1-1/4	3.22	82	1.54	39	2.38	60.3
C1G109-24-24	1-1/2	1-1/2	4.59	117	3.22	82	2.38	60.3
C1G109-32-24	2	1-1/2	3.14	80	1.77	45	2.81	71.4
C1G109-32-32	2	2	4.99	127	3.21	82	2.81	71.4

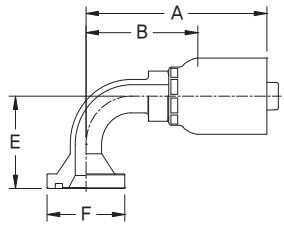
09 Series

C4G109 SAE Code 61 Flange 45° Elbow



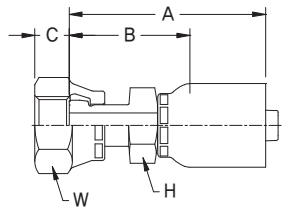
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
C4G109-12-12	3/4	3/4	3.85	98	2.41	61	1.50	38.1	1.02	26
C4G109-16-12	1	3/4	3.85	98	2.41	61	1.75	44.5	1.10	28
C4G109-16-16	1	1	4.76	121	3.14	80	1.75	44.5	1.26	32
C4G109-20-16	1-1/4	1	4.76	121	3.14	80	2.00	50.8	1.26	32
C4G109-20-20	1-1/4	1-1/4	5.61	142	3.92	100	2.00	50.8	1.50	38
C4G109-24-20	1-1/2	1-1/4	5.72	145	4.03	102	2.38	60.3	1.69	43
C4G109-24-24	1-1/2	1-1/2	5.84	148	4.47	114	2.38	60.3	1.61	41
C4G109-32-32	2	2	7.19	183	5.41	138	2.81	71.4	1.97	50

C9G109 SAE Code 61 Flange 90° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
C9G109-12-12	3/4	3/4	3.51	89	2.07	53	1.50	38.1	2.28	58
C9G109-16-12	1	3/4	3.52	89	2.08	53	1.75	44.5	2.28	58
C9G109-16-16	1	1	4.28	109	2.66	68	1.75	44.5	2.76	70
C9G109-20-16	1-1/4	1	4.28	109	2.66	68	2.00	50.8	2.76	70
C9G109-20-20	1-1/4	1-1/4	5.39	137	3.70	94	2.00	50.8	3.54	90
C9G109-24-20	1-1/2	1-1/4	5.09	129	3.41	86	2.38	60.3	3.54	90
C9G109-24-24	1-1/2	1-1/2	5.55	141	4.18	106	2.38	60.3	4.09	104
C9G109-32-32	2	2	7.11	181	5.33	135	2.81	71.4	4.72	120

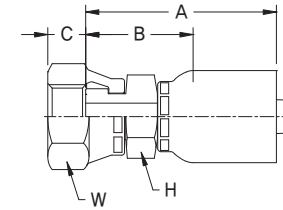
C1L09 Female "SEAL-LOK" Swivel Straight (Long) O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
C1L09-4-4	9/16X18	1/4	2.07	53	9/16	11/16	1.32	33	0.30	7.6
C1L09-6-4	11/16X16	1/4	2.14	54	11/16	13/16	1.39	35	0.33	8.4
C1L09-6-6	11/16X16	3/8	2.28	58	11/16	13/16	1.25	32	0.33	8.4
C1L09-8-6	13/16X16	3/8	2.53	64	13/16	15/16	1.50	38	0.42	10.7
C1L09-8-8	13/16X16	1/2	2.65	67	13/16	15/16	1.39	35	0.42	10.7
C1L09-8-10	13/16X16	5/8	2.82	72	15/16	15/16	1.38	35	0.42	10.7
C1L09-10-10	1X14	5/8	3.09	79	15/16	1-1/8	1.65	42	0.46	11.7
C1L09-12-12	1-3/16X12	3/4	3.31	84	1-1/8	1-3/8	1.87	48	0.54	13.7
C1L09-16-16	1-7/16X12	1	3.62	92	1-3/8	1-5/8	2.00	51	0.55	14.0

09 Series

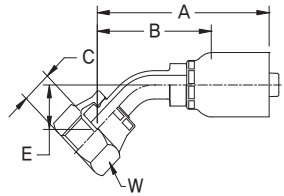
C1R09 Female "SEAL-LOK" Swivel Straight O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
C1R09-4-4	9/16X18	1/4	1.63	41	9/16	11/16	0.88	22	0.30	7.6
C1R09-4-4M	9/16X18	1/4	1.63	41	17	17	0.88	22	0.30	7.6
C1R09-4-6	9/16X18	3/8	1.90	48	11/16	11/16	0.87	22	0.30	7.6
C1R09-6-4	11/16X16	1/4	1.67	42	11/16	13/16	0.92	23	0.33	8.4
C1R09-6-4M	11/16X16	1/4	1.67	42	17	22	0.92	23	0.33	8.4
C1R09-6-5	11/16X16	5/16	1.75	44	11/16	13/16	1.00	25	0.33	8.4
C1R09-6-6	11/16X16	3/8	1.94	49	11/16	13/16	0.91	23	0.33	8.4
C1R09-6-6M	11/16X16	3/8	1.94	49	19	22	0.91	23	0.33	8.4
C1R09-6-8	11/16X16	1/2	2.16	55	13/16	13/16	0.90	23	0.33	8.4
C1R09-8-6	13/16X16	3/8	2.00	51	13/16	15/16	0.97	25	0.42	10.7
C1R09-8-6M	13/16X16	3/8	2.00	51	19	24	0.97	25	0.42	10.7
C1R09-8-8	13/16X16	1/2	2.22	56	13/16	15/16	0.96	24	0.42	10.7
C1R09-8-8M	13/16X16	1/2	2.22	56	22	24	0.96	24	0.42	10.7
C1R09-8-10M	13/16X16	5/8	2.39	61	22	24	0.95	24	0.42	10.7
C1R09-8-12	13/16X16	3/4	2.54	65	1-1/8	15/16	1.10	28	0.42	10.7
C1R09-10-8	1X14	1/2	2.30	58	15/16	1-1/8	1.04	26	0.46	11.7
C1R09-10-8M	1X14	1/2	2.30	58	24	30	1.04	26	0.46	11.7
C1R09-10-10	1X14	5/8	2.49	63	15/16	1-1/8	1.05	27	0.46	11.7
C1R09-10-10M	1X14	5/8	2.49	63	24	30	1.05	27	0.46	11.7
C1R09-12-8	1-3/16X12	1/2	2.48	63	1-1/8	1-3/8	1.22	31	0.54	13.7
C1R09-12-8M	1-3/16X12	1/2	2.48	63	32	36	1.22	31	0.54	13.7
C1R09-12-10	1-3/16X12	5/8	2.67	68	1-1/8	1-3/8	1.23	31	0.54	13.7
C1R09-12-10M	1-3/16X12	5/8	2.67	68	32	36	1.23	31	0.54	13.7
C1R09-12-12	1-3/16X12	3/4	2.68	68	1-1/8	1-3/8	1.24	31	0.54	13.7
C1R09-12-12M	1-3/16X12	3/4	2.68	68	32	36	1.24	32	0.54	13.7
C1R09-12-16	1-3/16X12	1	2.99	76	1-5/16	1-3/8	1.37	35	0.54	13.7
C1R09-16-12	1-7/16X12	3/4	2.83	72	1-3/8	1-5/8	1.39	35	0.55	14.0
C1R09-16-12M	1-7/16X12	3/4	2.83	72	36	41	1.39	35	0.55	14.0
C1R09-16-16	1-7/16X12	1	3.14	80	1-3/8	1-5/8	1.52	39	0.55	14.0
C1R09-16-16M	1-7/16X12	1	3.14	80	36	41	1.52	39	0.55	14.0
C1R09-20-16	1-11/16X12	1	3.08	78	1-5/8	1-7/8	1.46	37	0.57	14.5
C1R09-20-16M	1-11/16X12	1	3.08	78	41	50	1.46	37	0.57	14.5
C1R09-20-20	1-11/16X12	1-1/4	3.27	83	1-7/8	1-7/8	1.58	40	0.57	14.5
C1R09-20-20M	1-11/16X12	1-1/4	3.27	83	50	50	1.58	40	0.57	14.5

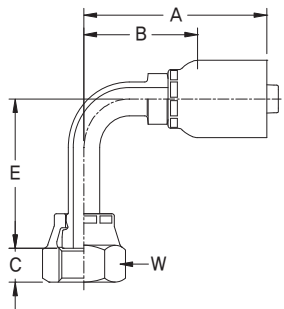
09 Series

C4R09 Female "SEAL-LOK" Swivel 45° Elbow O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C4R09-4-4	9/16X18	1/4	1.97	50	11/16	1.21	31	0.39	10	0.30	7.6
C4R09-6-4	11/16X16	1/4	2.00	51	13/16	1.24	32	0.43	11	0.33	8.4
C4R09-6-6	11/16X16	3/8	2.34	59	13/16	1.31	33	0.43	11	0.33	8.4
C4R09-6-6M	11/16X16	3/8	2.61	66	22	1.58	40	0.71	18	0.33	8.4
C4R09-8-6	13/16X16	3/8	2.53	64	15/16	1.50	38	0.59	15	0.42	10.7
C4R09-8-8	13/16X16	1/2	2.82	72	15/16	1.57	40	0.59	15	0.42	10.7
C4R09-8-8M	13/16X16	1/2	2.82	72	24	1.57	40	0.59	15	0.42	10.7
C4R09-10-8	1X14	1/2	2.93	74	1-1/8	1.67	42	0.63	16	0.46	11.7
C4R09-10-10	1X14	5/8	3.18	81	1-1/8	1.73	44	0.63	16	0.46	11.7
C4R09-12-12	1-3/16X12	3/4	3.63	92	1-3/8	2.19	56	0.83	21	0.54	13.7
C4R09-12-12M	1-3/16X12	3/4	3.63	92	36	2.19	56	0.83	21	0.54	13.7
C4R09-16-12	1-7/16X12	3/4	3.75	95	1-5/8	2.32	59	0.94	24	0.55	14.0
C4R09-16-16	1-7/16X12	1	4.38	111	1-5/8	2.76	70	0.94	24	0.55	14.0
C4R09-16-16M	1-7/16X12	1	4.38	111	41	2.76	70	0.94	24	0.55	14.0
C4R09-20-20	1-11/16X12	1-1/4	5.70	145	1-7/8	4.02	102	1.61	41	0.57	14.5
C4R09-24-24	2X12	1-1/2	6.14	156	2-1/4	4.77	121	1.89	48	0.60	15.2

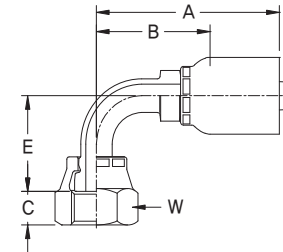
C9R09 D Female "SEAL-LOK" Swivel 90° Elbow (Long) O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9R09-4-4D	9/16X18	1/4	1.87	47	11/16	1.11	28	1.81	46	0.30	7.6
C9R09-6-6D	11/16X16	3/8	2.39	61	13/16	1.36	35	2.13	54	0.33	8.4
C9R09-8-8D	13/16X16	1/2	2.58	66	15/16	1.32	34	2.51	64	0.42	10.7
C9R09-10-10D	1X14	5/8	3.19	81	1-1/8	1.74	44	2.76	70	0.46	11.7
C9R09-12-12D	1-3/16X12	3/4	3.49	89	1-3/8	2.05	52	3.78	96	0.54	13.7
C9R09-12-12DM	1-3/16X12	3/4	3.49	89	36	2.05	52	3.78	96	0.54	13.7

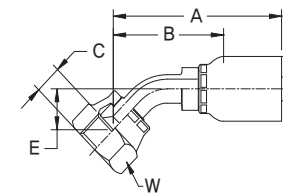
09 Series

C9R09 Female "SEAL-LOK" Swivel 90° Elbow (Short) O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9R09-4-4	9/16X18	1/4	1.78	45	11/16	1.02	26	0.83	21	0.30	7.6
C9R09-4-4M	9/16X18	1/4	1.78	45	17	1.02	26	0.83	21	0.30	7.6
C9R09-6-4	11/16X16	1/4	1.81	46	13/16	1.06	27	0.91	23	0.33	8.4
C9R09-6-6	11/16X16	3/8	2.20	56	13/16	1.18	30	0.91	23	0.33	8.4
C9R09-6-6M	11/16X16	3/8	2.20	56	22	1.18	30	0.91	23	0.33	8.4
C9R09-8-6	13/16X16	3/8	2.28	58	15/16	1.25	32	1.14	29	0.42	10.7
C9R09-8-8	13/16X16	1/2	2.58	66	15/16	1.32	34	1.14	29	0.42	10.7
C9R09-8-8M	13/16X16	1/2	2.58	66	24	1.32	34	1.14	29	0.42	10.7
C9R09-10-8	1X14	1/2	2.74	70	1-1/8	1.48	38	1.26	32	0.46	11.7
C9R09-10-10	1X14	5/8	2.97	76	1-1/8	1.53	39	1.26	32	0.46	11.7
C9R09-12-10	1-3/16X12	5/8	3.20	81	1-3/8	1.75	45	1.89	48	0.54	13.7
C9R09-12-12	1-3/16X12	3/4	3.49	89	1-3/8	2.05	52	1.89	48	0.54	13.7
C9R09-12-12M	1-3/16X12	3/4	3.49	89	36	2.05	52	1.89	48	0.54	13.7
C9R09-16-16	1-7/16X12	1	4.31	110	1-5/8	2.69	68	2.20	56	0.55	14.0
C9R09-16-16M	1-7/16X12	1	4.31	110	41	2.69	68	2.20	56	0.55	14.0
C9R09-20-20	1-11/16X12	1-1/4	5.10	129	1-7/8	3.41	87	3.23	82	0.57	14.5
C9R09-24-24	2X12	1-1/2	5.52	140	2-1/4	4.15	105	3.96	101	0.60	15.2

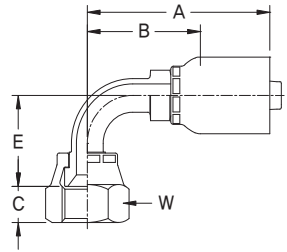
C4X09 Female SAE 37° Swivel - 45° Elbow



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C4X09-4-4	7/16X20	1/4	1.97	50	9/16	1.22	31	0.39	10	0.34	8.6
C4X09-5-4	1/2X20	1/4	1.97	50	5/8	1.22	31	0.39	10	0.37	9.4
C4X09-6-4	9/16X18	1/4	2.00	51	11/16	1.25	32	0.43	11	0.37	9.4
C4X09-6-6	9/16X18	3/8	2.34	59	11/16	1.31	33	0.43	11	0.37	9.4
C4X09-8-6	3/4X16	3/8	2.46	63	7/8	1.44	36	0.55	14	0.42	10.7
C4X09-8-8	3/4X16	1/2	2.82	72	7/8	1.57	40	0.59	15	0.42	10.7
C4X09-10-8	7/8X14	1/2	2.86	73	1	1.61	41	0.59	15	0.49	12.4
C4X09-10-10	7/8X14	5/8	3.17	80	1	1.72	44	0.63	16	0.49	12.4
C4X09-12-10	1-1/16X12	5/8	3.63	92	1-1/4	2.19	56	0.83	21	0.56	14.2
C4X09-12-12	1-1/16X12	3/4	3.91	99	1-1/4	2.47	63	1.06	27	0.56	14.2
C4X09-16-12	1-5/16X12	3/4	3.75	95	1-1/2	2.32	59	0.94	24	0.60	15.2
C4X09-16-16	1-5/16X12	1	4.76	121	1-1/2	3.14	80	1.30	33	0.60	15.2
C4X09-20-20	1-5/8X12	1-1/4	5.84	148	2	4.15	105	1.77	45	0.62	15.7

09 Series

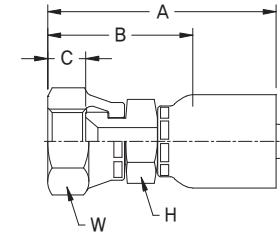
C9X09 Female SAE 37° Swivel - 90° Elbow



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9X09-4-4	7/16X20	1/4	1.79	45	9/16	1.04	26	0.83	21	0.34	8.6
C9X09-5-4	1/2X20	1/4	1.79	45	5/8	1.03	26	0.83	21	0.37	9.4
C9X09-6-4	9/16X18	1/4	1.78	45	11/16	1.02	26	0.87	22	0.37	9.4
C9X09-6-6	9/16X18	3/8	2.21	56	11/16	1.18	30	0.91	23	0.37	9.4
C9X09-8-6	3/4X16	3/8	2.21	56	7/8	1.18	30	1.10	28	0.42	10.7
C9X09-8-8	3/4X16	1/2	2.58	66	7/8	1.32	34	1.22	31	0.42	10.7
C9X09-10-8	7/8X14	1/2	2.58	66	1	1.32	34	1.22	31	0.49	12.4
C9X09-10-10	7/8X14	5/8	2.97	76	1	1.53	39	1.34	34	0.49	12.4
C9X09-12-10	1-1/16X12	5/8	2.98	76	1-1/4	1.53	39	1.89	48	0.56	14.2
C9X09-12-12	1-1/16X12	3/4	3.49	89	1-1/4	2.05	52	2.09	53	0.56	14.2
C9X09-16-12	1-5/16X12	3/4	3.49	89	1-1/2	2.05	52	2.20	56	0.60	15.2
C9X09-16-16	1-5/16X12	1	4.31	109	1-1/2	2.69	68	2.91	74	0.60	15.2
C9X09-20-16	1-5/8X12	1	4.37	111	2	2.75	70	3.07	78	0.62	15.7
C9X09-20-20	1-5/8X12	1-1/4	5.10	129	2	3.41	87	3.35	85	0.62	15.7
C9X09-24-24	1-7/8X12	1-1/2	5.64	143	2-1/4	4.27	109	4.33	110	0.74	18.8

09 Series

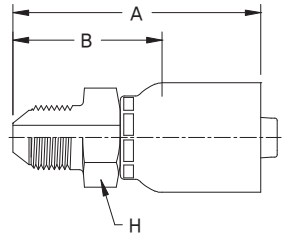
C1X09 Female SAE 37° Swivel



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	UN	inch	inch	mm			inch	mm	inch	mm
C1X09-4-4	7/16X20	1/4	1.93	49	9/16	9/16	1.18	30	0.34	8.6
C1X09-5-4	1/2X20	1/4	2.02	51	9/16	5/8	1.27	32	0.37	9.4
C1X09-5-5	1/2X20	5/16	2.07	53	11/16	5/8	1.32	33	0.37	9.4
C1X09-6-4	9/16X18	1/4	2.04	52	9/16	11/16	1.29	33	0.37	9.4
C1X09-6-5	9/16X18	5/16	2.09	53	11/16	11/16	1.34	34	0.37	9.4
C1X09-6-6	9/16X18	3/8	2.28	58	11/16	11/16	1.25	32	0.37	9.4
C1X09-8-6	3/4X16	3/8	2.39	61	11/16	7/8	1.36	35	0.42	10.7
C1X09-8-8	3/4X16	1/2	2.61	66	13/16	7/8	1.35	34	0.42	10.7
C1X09-10-6	7/8X14	3/8	2.49	63	7/8	1	1.46	37	0.49	12.4
C1X09-10-8	7/8X14	1/2	2.83	72	7/8	1	1.57	40	0.49	12.4
C1X09-10-10	7/8X14	5/8	2.91	74	15/16	1	1.47	37	0.49	12.4
C1X09-12-8	1-1/16X12	1/2	2.77	70	1-1/16	1-1/4	1.51	38	0.56	14.2
C1X09-12-10	1-1/16X12	5/8	3.09	79	1-1/16	1-1/4	1.65	42	0.56	14.2
C1X09-12-12	1-1/16X12	3/4	3.16	80	1-1/16	1-1/4	1.72	44	0.56	14.2
C1X09-12-16	1-1/16X12	1	3.48	88	1-3/8	1-1/4	1.86	47	0.56	14.2
C1X09-16-12	1-5/16X12	3/4	3.30	84	1-1/4	1-1/2	1.86	47	0.60	15.2
C1X09-16-16	1-5/16X12	1	3.61	92	1-3/8	1-1/2	1.99	51	0.60	15.2
C1X09-20-16	1-5/8X12	1	3.79	96	1-5/8	2	2.17	55	0.62	15.7
C1X09-20-20	1-5/8X12	1-1/4	3.92	100	1-7/8	2	2.23	57	0.62	15.7
C1X09-24-20	1-7/8X12	1-1/4	4.12	105	2-1/8	2-1/4	2.43	62	0.74	18.8
C1X09-24-24	1-7/8X12	1-1/2	3.83	97	2-1/8	2-1/4	2.46	62	0.74	18.8
C1X09-32-32	2-1/2X12	2	4.71	120	2-1/2	2-7/8	2.93	74	0.93	23.6

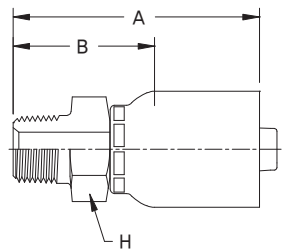
09 Series

C1Y09 Male SAE 37°



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	UN	inch	inch	mm		inch	mm
C1Y09-4-4	7/16X20	1/4	1.99	51	9/16	1.24	31
C1Y09-5-4	1/2X20	1/4	1.83	47	9/16	1.08	27
C1Y09-5-5	1/2X20	5/16	1.91	49	9/16	1.16	29
C1Y09-6-4	9/16X18	1/4	1.84	47	11/16	1.09	28
C1Y09-6-6	9/16X18	3/8	2.36	60	3/4	1.33	34
C1Y09-8-6	3/4X16	3/8	2.30	58	7/8	1.27	32
C1Y09-8-8	3/4X16	1/2	2.68	68	7/8	1.42	36
C1Y09-10-8	7/8X14	1/2	2.62	66	15/16	1.36	35
C1Y09-10-10	7/8X14	5/8	3.03	77	15/16	1.59	40
C1Y09-12-12	1-1/16X12	3/4	3.19	81	1-1/8	1.75	44
C1Y09-16-16	1-5/16X12	1	3.63	92	1-3/8	2.01	51
C1Y09-20-20	1-5/8X12	1-1/4	3.96	101	1-7/8	2.27	58
C1Y09-24-24	1-7/8X12	1-1/2	3.34	85	2	1.97	50

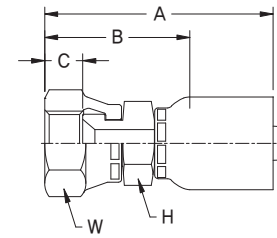
C1N09 Male NPTF



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	UN	inch	inch	mm		inch	mm
C1N09-2-4	1/8X27	1/4	1.79	45	9/16	1.04	26
C1N09-4-4	1/4X18	1/4	2.01	51	9/16	1.26	32
C1N09-6-4	3/8X18	1/4	1.86	47	11/16	1.11	28
C1N09-6-6	3/8X18	3/8	2.37	60	3/4	1.34	34
C1N09-8-6	1/2X14	3/8	2.39	61	7/8	1.36	35
C1N09-8-8	1/2X14	1/2	2.84	72	7/8	1.58	40
C1N09-12-8	3/4X14	1/2	2.68	68	1-1/16	1.42	36
C1N09-12-10	3/4X14	5/8	2.87	73	1-1/16	1.43	36
C1N09-12-12	3/4X14	3/4	3.09	78	1-1/16	1.65	42
C1N09-16-12	1X11-1/2	3/4	3.09	78	1-3/8	1.65	42
C1N09-16-16	1X11-1/2	1	3.59	91	1-3/8	1.97	50
C1N09-20-20	1-1/4X11-1/2	1-1/4	4.08	104	1-3/4	2.39	61
C1N09-24-24	1-1/2X11-1/2	1-1/2	3.50	89	2	2.13	54
C1N09-32-32	2X11-1/2	2	4.05	103	2-1/2	2.27	58

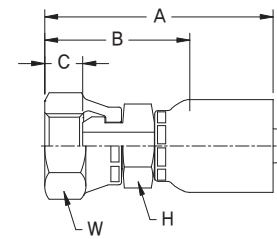
12 Series

C1F12 Female JIS/BSP Parallel Pipe Swivel Straight (30°Flare)



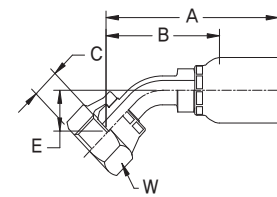
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	PF	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1F12-12-12	3/4X14	3/4	3.17	80	36	36	1.79	45	0.50	12.7
C1F12-16-16	1X11	1	3.72	94	41	41	1.94	49	0.58	14.7
C1F12-20-20	1-1/4X11	1-1/4	3.98	101	50	50	2.29	58	0.60	15.2
C1F12-24-24	1-1/2X11	1-1/2	4.78	121	60	60	2.59	66	0.64	16.3
C1F12-32-32	2X11	2	5.11	130	70	70	2.91	74	0.69	17.5

C1C12 Female JIS/BSP Parallel Pipe Swivel Straight (60°Cone)



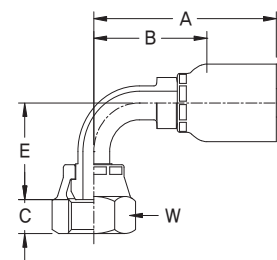
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	PF	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1C12-12-10	3/4X14	5/8	3.12	79	36	36	1.88	48	0.38	9.7
C1C12-12-12	3/4X14	3/4	3.22	82	36	36	1.85	47	0.38	9.7
C1C12-16-12	1X11	3/4	3.42	87	41	41	2.04	52	0.46	11.7
C1C12-16-16	1X11	1	3.80	97	41	41	2.03	51	0.46	11.7
C1C12-20-20	1-1/4X11	1-1/4	4.05	103	50	50	2.36	60	0.48	12.2
C1C12-24-24	1-1/2X11	1-1/2	4.80	122	60	60	2.61	66	0.48	12.2
C1C12-32-32	2X11	2	5.15	131	70	70	2.95	75	0.58	14.7

C4C12 Female JIS/BSP Parallel Pipe Swivel 45°Elbow (60°Cone)



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	PF	inch	inch	mm	mm	inch	mm	inch	mm	inch	mm
C4C12-12-12	3/4X14	3/4	3.82	97	36	2.44	62	1.02	26	0.38	9.7
C4C12-16-16	1X11	1	4.88	124	41	3.10	79	1.30	33	0.46	11.7
C4C12-20-20	1-1/4X11	1-1/4	5.86	149	50	4.17	106	1.81	46	0.48	12.2

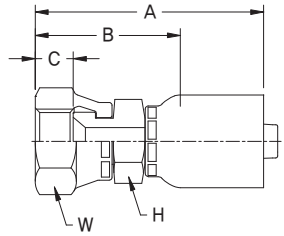
C9C12 Female JIS/BSP Parallel Pipe Swivel 90°Elbow (60°Cone)



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	PF	inch	inch	mm	mm	inch	mm	inch	mm	inch	mm
C9C12-12-12	3/4X14	3/4	3.49	89	36	2.11	54	2.17	55	0.38	9.7
C9C12-16-16	1X11	1	4.78	121	41	3.00	76	2.89	74	0.46	11.7
C9C12-20-20	1-1/4X11	1-1/4	5.10	129	50	3.41	87	3.48	89	0.48	12.2
C9C12-24-24	1-1/2X11	1-1/2	6.45	164	60	4.26	108	4.33	110	0.48	12.2

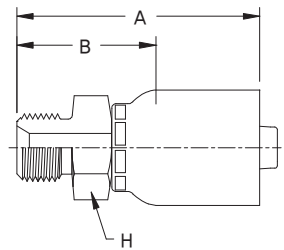
12 Series

C1M12 Female JIS/Metric Swivel Straight (30°Flare)



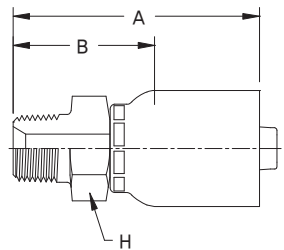
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	Metric	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1M12-12-12	M27X2	3/4	3.16	80	36	36	1.78	45	0.49	12.4
C1M12-16-16	M33X2	1	3.65	93	41	41	1.87	47	0.51	13.0
C1M12-20-20	M42X2	1-1/4	3.95	100	50	50	2.26	57	0.57	14.5

C1FF12 Male JIS/BSP Parallel Pipe-Rigid Straight (30°Flare)



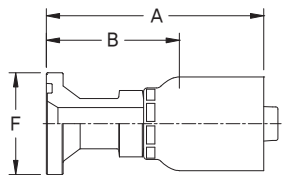
Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PF	inch	inch	mm	mm	inch	mm
C1FF12-12-12	3/4X14	3/4	3.02	77	36	1.64	42
C1FF12-16-16	1X11	1	3.53	90	41	1.75	44
C1FF12-20-20	1-1/4X11	1-1/4	3.77	96	50	2.08	53
C1FF12-24-24	1-1/2X11	1-1/2	4.40	112	60	2.21	56

C1P12 Male JIS/BSP Taper Pipe-Rigid Straight



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PT	inch	inch	mm	mm	inch	mm
C1P12-12-12	3/4X14	3/4	2.98	76	36	1.60	41
C1P12-16-16	1X11	1	3.56	90	41	1.78	45
C1P12-20-20	1-1/4X11	1-1/4	3.79	96	50	2.10	53
C1P12-24-24	1-1/2X11	1-1/2	4.46	113	60	2.27	58
C1P12-32-32	2X11	2	4.95	126	70	2.75	70

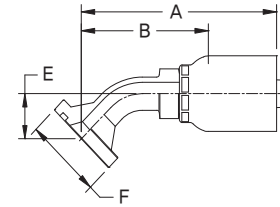
C1G212 SAE Code 62 Flange Straight



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1G212-12-12	3/4	3/4	4.12	105	2.74	70	1.63	41.3
C1G212-16-12	1	3/4	3.10	79	1.72	44	1.88	47.6
C1G212-16-16	1	1	4.89	124	3.11	79	1.88	47.6
C1G212-20-16	1-1/4	1	3.68	93	1.90	48	2.13	54.0
C1G212-20-20	1-1/4	1-1/4	5.01	127	3.32	84	2.13	54.0
C1G212-24-24	1-1/2	1-1/2	6.34	161	4.15	105	2.50	63.5
C1G212-32-32	2	2	7.16	182	4.96	126	3.13	79.4

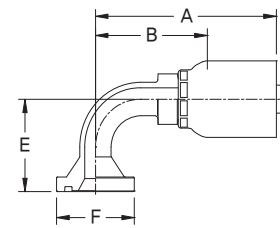
12 Series

C4G212 SAE Code 62 Flange 45°Elbow



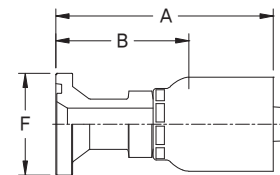
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C4G212-12-12	3/4	3/4	3.89	99	2.51	64	1.63	41.3	1.06	27
C4G212-16-12	1	3/4	4.69	119	3.31	84	1.88	47.6	1.22	31
C4G212-16-16	1	1	4.83	123	3.05	78	1.88	47.6	1.26	32
C4G212-20-16	1-1/4	1	4.83	123	3.06	78	2.13	54.0	1.26	32
C4G212-20-20	1-1/4	1-1/4	5.61	142	3.92	100	2.13	54.0	1.50	38
C4G212-24-24	1-1/2	1-1/2	6.80	173	4.61	117	2.50	63.5	1.73	44

C9G212 SAE Code 62 Flange 90°Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C9G212-12-12	3/4	3/4	3.51	89	2.13	54	1.63	41.3	2.28	58
C9G212-12-12100	3/4	3/4	3.51	89	2.13	54	1.63	41.3	3.94	100
C9G212-16-12	1	3/4	3.52	89	2.14	54	1.88	47.6	2.28	58
C9G212-16-1290	1	3/4	3.52	89	2.14	54	1.88	47.6	3.54	90
C9G212-16-16	1	1	4.35	110	2.57	65	1.88	47.6	2.76	70
C9G212-16-16130	1	1	4.35	110	2.57	65	1.88	47.6	5.12	130
C9G212-20-16	1-1/4	1	4.36	111	2.58	66	2.13	54.0	2.76	70
C9G212-20-20	1-1/4	1-1/4	5.18	132	3.50	89	2.13	54.0	3.54	90
C9G212-20-20120	1-1/4	1-1/4	5.39	137	3.70	94	2.13	54.0	4.72	120
C9G212-24-24	1-1/2	1-1/2	6.32	161	4.13	105	2.50	63.5	4.09	104
C9G212-32-32	2	2	7.78	198	5.58	142	3.13	79.4	4.88	124

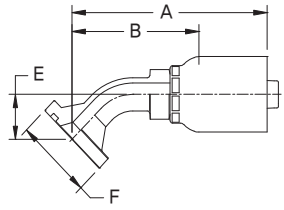
C1G112 SAE Code 61 Flange Straight



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1G112-12-12	3/4	3/4	3.86	98	2.48	63	1.50	38.1
C1G112-16-12	1	3/4	2.74	70	1.36	35	1.75	44.5
C1G112-16-16	1	1	4.32	110	2.55	65	1.75	44.5
C1G112-20-16	1-1/4	1	3.27	83	1.50	38	2.00	50.8
C1G112-20-20	1-1/4	1-1/4	4.70	119	3.01	76	2.00	50.8
C1G112-24-20	1-1/2	1-1/4	3.22	82	1.54	39	2.38	60.3
C1G112-24-24	1-1/2	1-1/2	5.47	139	3.28	83	2.38	60.3
C1G112-32-24	2	1-1/2	4.01	102	1.82	46	2.81	71.4
C1G112-32-32	2	2	5.65	143	3.45	88	2.81	71.4

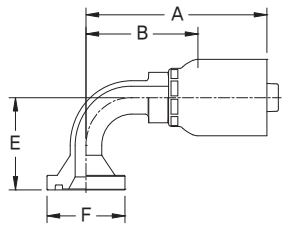
12 Series

C4G112 SAE Code 61 Flange 45° Elbow



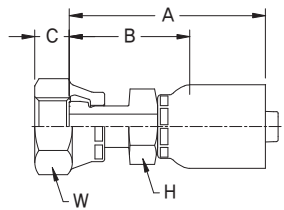
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
C4G112-12-12	3/4	3/4	3.85	98	2.47	63	1.50	38.1	1.02	26
C4G112-16-12	1	3/4	3.85	98	2.47	63	1.75	44.5	1.10	28
C4G112-16-16	1	1	4.83	123	3.05	78	1.75	44.5	1.26	32
C4G112-20-16	1-1/4	1	4.83	123	3.06	78	2.00	50.8	1.26	32
C4G112-20-20	1-1/4	1-1/4	5.61	142	3.92	100	2.00	50.8	1.50	38
C4G112-24-20	1-1/2	1-1/4	5.72	145	4.03	102	2.38	60.3	1.69	43
C4G112-24-24	1-1/2	1-1/2	6.72	171	4.53	115	2.38	60.3	1.61	41
C4G112-32-24	2	1-1/2	7.10	180	4.91	125	2.81	71.4	1.97	50
C4G112-32-32	2	2	7.86	200	5.66	144	2.81	71.4	1.93	49

C9G112 SAE Code 61 Flange 90° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
C9G112-12-12	3/4	3/4	3.51	89	2.13	54	1.50	38.1	2.28	58
C9G112-12-12130	3/4	3/4	3.53	90	2.16	55	1.50	38.1	5.12	130
C9G112-16-12	1	3/4	3.52	89	2.14	54	1.75	44.5	2.28	58
C9G112-16-12130	1	3/4	3.52	89	2.14	54	1.75	44.5	5.12	130
C9G112-16-16	1	1	4.36	111	2.58	66	1.75	44.5	2.76	70
C9G112-16-16130	1	1	4.36	111	2.58	66	1.75	44.5	5.12	130
C9G112-20-16	1-1/4	1	4.36	111	2.58	66	2.00	50.8	2.76	70
C9G112-20-16100	1-1/4	1	4.36	111	2.58	66	2.00	50.8	3.94	100
C9G112-20-20	1-1/4	1-1/4	5.39	137	3.70	94	2.00	50.8	3.54	90
C9G112-20-20100	1-1/4	1-1/4	5.39	137	3.70	94	2.00	50.8	3.94	100
C9G112-20-20130	1-1/4	1-1/4	5.39	137	3.70	94	2.00	50.8	5.12	130
C9G112-24-20	1-1/2	1-1/4	5.09	129	3.41	86	2.38	60.3	3.54	90
C9G112-24-24	1-1/2	1-1/2	6.42	163	4.23	107	2.38	60.3	4.09	104
C9G112-32-32	2	2	7.78	198	5.58	142	2.81	71.4	4.72	120

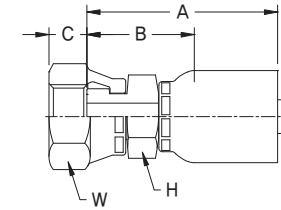
C1L12 Female "SEAL-LOK" Swivel Straight (Long) O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
C1L12-10-10	1X14	5/8	3.00	76	15/16	1-1/8	1.75	45	0.46	11.7
C1L12-12-12	1-3/16X12	3/4	3.31	84	1-1/8	1-3/8	1.93	49	0.54	13.7
C1L12-16-16	1-7/16X12	1	3.70	94	1-3/8	1-5/8	1.92	49	0.55	14.0
C1L12-20-20	1-11/16X12	1-1/4	3.77	96	1-3/4	1-7/8	2.08	53	0.57	14.5
C1L12-24-24	2X12	1-1/2	4.75	121	2	2-1/4	2.56	65	0.60	15.2

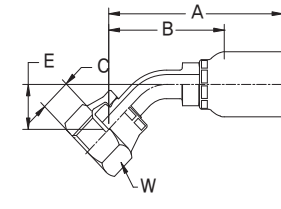
12 Series

C1R12 Female "SEAL-LOK" Swivel Straight O-Ring Face Seal



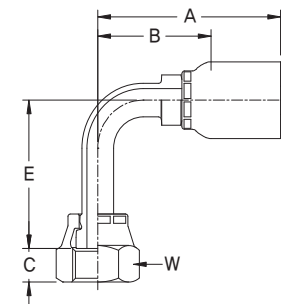
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
C1R12-12-12	1-3/16X12	3/4	2.68	68	1-1/8	1-3/8	1.30	33	0.54	13.7
C1R12-12-12M	1-3/16X12	3/4	2.68	68	32	36	1.30	33	0.54	13.7
C1R12-16-12M	1-7/16X12	3/4	2.83	72	36	41	1.45	37	0.55	14.0
C1R12-16-16	1-7/16X12	1	3.22	82	1-3/8	1-5/8	1.44	37	0.55	14.0
C1R12-16-16M	1-7/16X12	1	3.22	82	36	41	1.44	37	0.55	14.0
C1R12-20-16M	1-11/16X12	1	3.16	80	41	50	1.38	35	0.57	14.5
C1R12-20-20	1-11/16X12	1-1/4	3.27	83	1-7/8	1-7/8	1.58	40	0.57	14.5
C1R12-20-20M	1-11/16X12	1-1/4	3.27	83	50	50	1.58	40	0.57	14.5
C1R12-24-24	2X12	1-1/2	3.86	98	2	2-1/4	1.67	42	0.60	15.2

C4R12 Female "SEAL-LOK" Swivel 45° Elbow O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
			inch	mm		inch	mm	inch	mm	inch	mm
C4R12-12-12	1-3/16X12	3/4	3.63	92	1-3/8	2.25	57	0.83	21	0.54	13.7
C4R12-16-12	1-7/16X12	3/4	3.75	95	1-5/8	2.38	60	0.94	24	0.55	14.0
C4R12-16-16	1-7/16X12	1	4.46	113	1-5/8	2.68	68	0.94	24	0.55	14.0
C4R12-20-20	1-11/16X12	1-1/4	5.70	145	1-7/8	4.02	102	1.61	41	0.57	14.5

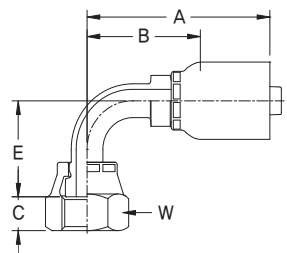
C9R12 D Female "SEAL-LOK" Swivel 90° Elbow (Long) O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
			inch	mm		inch	mm	inch	mm	inch	mm
C9R12-12-12D	1-3/16X12	3/4	3.49	89	1-3/8	2.11	54	3.78	96	0.54	13.7
C9R12-12-12D	1-3/16X12	3/4	3.49	89	36	2.11	54	3.78	96	0.54	13.7

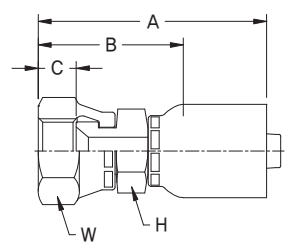
12 Series

C9R12 Female "SEAL-LOK" Swivel 90° Elbow (Short) O-Ring Face Seal



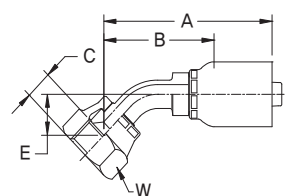
Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9R12-10-10	1X14	5/8	2.88	73	1-1/8	1.63	41	1.26	32	0.46	11.7
C9R12-12-12	1-3/16X12	3/4	3.49	89	1-3/8	2.11	54	1.89	48	0.54	13.7
C9R12-16-12	1-7/16X12	3/4	3.49	89	1-5/8	2.11	54	2.20	56	0.55	14.0
C9R12-16-16	1-7/16X12	1	4.39	111	1-5/8	2.61	66	2.20	56	0.55	14.0
C9R12-20-16	1-11/16X12	1	4.76	121	1-7/8	2.98	76	2.52	64	0.57	14.5
C9R12-20-20	1-11/16X12	1-1/4	5.10	129	1-7/8	3.41	87	3.23	82	0.57	14.5

C1X12 Female SAE 37° Swivel



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	UN	inch	inch	mm			inch	mm	inch	mm
C1X12-10-10	7/8X14	5/8	2.82	72	15/16	1	1.57	40	0.49	12.4
C1X12-12-10	1-1/16X12	5/8	3.00	76	1-1/16	1-1/4	1.75	44	0.56	14.2
C1X12-12-12	1-1/16X12	3/4	3.16	80	1-1/16	1-1/4	1.78	45	0.56	14.2
C1X12-16-12	1-5/16X12	3/4	3.30	84	1-1/4	1-1/2	1.92	49	0.60	15.2
C1X12-16-16	1-5/16X12	1	3.69	94	1-3/8	1-1/2	1.91	48	0.60	15.2
C1X12-20-16	1-5/8X12	1	3.87	98	1-5/8	2	2.09	53	0.62	15.7
C1X12-20-20	1-5/8X12	1-1/4	3.92	100	1-7/8	2	2.23	57	0.62	15.7
C1X12-24-20	1-7/8X12	1-1/4	4.12	105	2-1/8	2-1/4	2.43	62	0.74	18.8
C1X12-24-24	1-7/8X12	1-1/2	4.71	120	2-1/8	2-1/4	2.52	64	0.74	18.8
C1X12-32-32	2-1/2X12	2	5.38	137	2-1/2	2-7/8	3.18	81	0.93	23.6

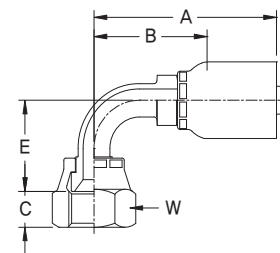
C4X12 Female SAE 37° Swivel - 45° Elbow



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C4X12-12-10	1-1/16X12	5/8	3.54	90	1-1/4	2.29	58	0.83	21	0.56	14.2
C4X12-12-12	1-1/16X12	3/4	3.91	99	1-1/4	2.53	64	1.06	27	0.56	14.2
C4X12-16-12	1-5/16X12	3/4	3.75	95	1-1/2	2.38	60	0.94	24	0.60	15.2
C4X12-16-16	1-5/16X12	1	4.84	123	1-1/2	3.06	78	1.30	33	0.60	15.2
C4X12-20-20	1-5/8X12	1-1/4	5.84	148	2	4.15	105	1.77	45	0.62	15.7
C4X12-24-24	1-7/8X12	1-1/2	7.25	184	2-1/4	5.06	128	2.05	52	0.74	18.8

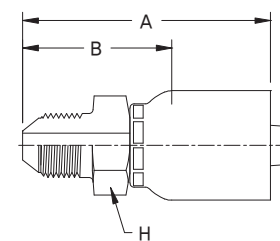
12 Series

C9X12 Female SAE 37° Swivel - 90° Elbow



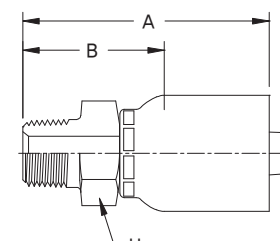
Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9X12-12-12	1-1/16X12	3/4	3.49	89	1-1/4	2.11	54	2.09	53	0.56	14.2
C9X12-16-12	1-5/16X12	3/4	3.49	89	1-1/2	2.11	54	2.20	56	0.60	15.2
C9X12-16-16	1-5/16X12	1	4.39	111	1-1/2	2.61	66	2.91	74	0.60	15.2
C9X12-20-20	1-5/8X12	1-1/4	5.10	129	2	3.41	87	3.35	85	0.62	15.7
C9X12-24-24	1-7/8X12	1-1/2	6.44	163	2-1/4	4.24	108	4.21	107	0.74	18.8

C1Y12 Male SAE 37°



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PF	inch	inch	mm		inch	mm
C1Y12-12-12	1-1/16X12	3/4	3.19	81	1-1/8	1.81	46
C1Y12-16-16	1-5/16X12	1	3.71	94	1-3/8	1.93	49
C1Y12-20-20	1-5/8X12	1-1/4	3.96	101	1-7/8	2.27	58
C1Y12-24-24	1-7/8X12	1-1/2	4.30	109	2	2.11	54
C1Y12-32-32	2-1/2X12	2	4.96	126	2-5/8	2.76	70

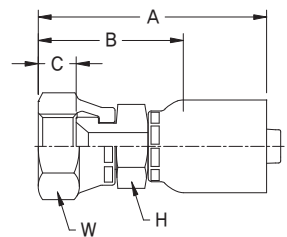
C1N12 Male NPTF



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PF	inch	inch	mm		inch	mm
C1N12-12-12	3/4X14	3/4	3.09	78	1-1/16	1.71	43
C1N12-16-16	1X11-1/2	1	3.67	93	1-3/8	1.89	48
C1N12-20-20	1-1/4X11-1/2	1-1/4	4.08	104	1-3/4	2.39	61
C1N12-24-24	1-1/2X11-1/2	1-1/2	4.38	111	2	2.19	56
C1N12-32-32	2X11-1/2	2	4.72	120	2-1/2	2.52	64

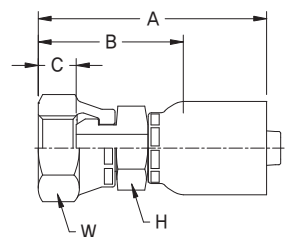
13 Series

C1F13 Female JIS/BSP Parallel Pipe Swivel Straight (30° Flare)



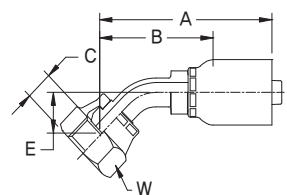
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	PF	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1F13-12-12	3/4X14	3/4	3.65	93	36	36	1.89	48	0.50	12.7
C1F13-16-16	1X11	1	3.99	101	41	41	2.14	54	0.58	14.7
C1F13-20-20	1-1/4X11	1-1/4	4.82	122	50	50	2.43	62	0.60	15.2
C1F13-32-32	2X11	2	5.69	145	70	70	3.12	79	0.69	17.5

C1C13 Female JIS/BSP Parallel Pipe Swivel Straight (60° Cone)



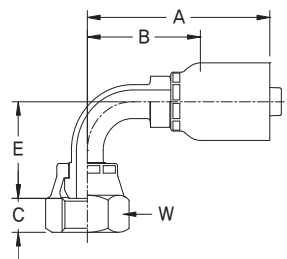
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	PF	inch	inch	mm	mm	mm	inch	mm	inch	mm
C1C13-12-12	3/4X14	3/4	3.75	95	36	36	1.99	51	0.38	9.7
C1C13-16-16	1X11	1	4.13	105	41	41	2.28	58	0.46	11.7
C1C13-20-20	1-1/4X11	1-1/4	4.95	126	50	50	2.56	65	0.48	12.2
C1C13-24-24	1-1/2X11	1-1/2	5.33	135	60	60	3.12	79	0.48	12.2
C1C13-32-32	2X11	2	5.57	142	70	70	3.00	76	0.58	14.7

C4C13 Female JIS/BSP Parallel Pipe Swivel 45° Elbow (60° Cone)



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	PF	inch	inch	mm	mm	inch	mm	inch	mm	inch	mm
C4C13-12-12	3/4X14	3/4	4.99	127	36	3.23	82	1.14	29	0.38	9.7
C4C13-16-16	1X11	1	5.15	131	41	3.30	84	1.30	33	0.46	11.7

C9C13 Female JIS/BSP Parallel Pipe Swivel 90° Elbow (60° Cone)

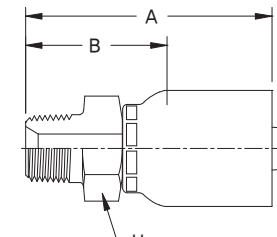


Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	PF	inch	inch	mm	mm	inch	mm	inch	mm	inch	mm
C9C13-12-12	3/4X14	3/4	4.01	102	36	2.25	57	2.17	55	0.38	9.7
C9C13-16-16	1X11	1	4.68	119	41	2.83	72	2.83	72	0.46	11.7



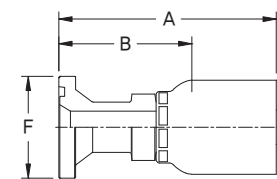
13 Series

C1P13 Male JIS/BSP Taper Pipe-Rigi Straight



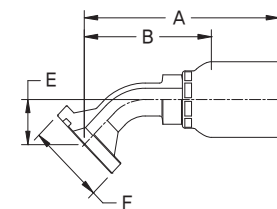
Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	PT	inch	inch	mm	mm	inch	mm
C1P13-12-12	3/4X14	3/4	3.42	87	36	1.66	42
C1P13-16-16	1X11	1	3.77	96	41	1.92	49
C1P13-20-20	1-1/4X11	1-1/4	4.63	118	50	2.24	57
C1P13-24-24	1-1/2X11	1-1/2	4.54	115	60	2.33	59

C1G213 SAE Coe 62 Flange Straight



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1G213-12-12	3/4	3/4	4.60	117	2.84	72	1.63	41.3
C1G213-16-12	1	3/4	3.58	91	1.82	46	1.88	47.6
C1G213-16-16	1	1	5.16	131	3.31	84	1.88	47.6
C1G213-20-16	1-1/4	1	3.95	100	2.10	53	2.13	54.0
C1G213-20-20	1-1/4	1-1/4	5.85	149	3.46	88	2.13	54.0
C1G213-24-20	1-1/2	1-1/4	4.77	121	2.38	60	2.50	63.5
C1G213-24-24	1-1/2	1-1/2	6.54	166	4.33	110	2.50	63.5
C1G213-32-32	2	2	7.63	194	5.06	128	3.13	79.4

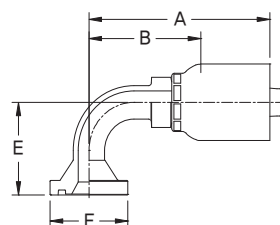
C4G213 SAE Coe 62 Flange 45° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C4G213-12-12	3/4	3/4	4.31	110	2.55	65	1.63	41.3	1.02	26
C4G213-16-12	1	3/4	4.33	110	2.57	65	1.88	47.6	1.02	26
C4G213-16-16	1	1	5.01	127	3.16	80	1.88	47.6	1.26	32
C4G213-20-16	1-1/4	1	5.56	141	3.71	94	2.13	54.0	1.26	32
C4G213-20-20	1-1/4	1-1/4	6.40	163	4.01	102	2.13	54.0	1.50	38
C4G213-24-24	1-1/2	1-1/2	6.99	178	4.78	121	2.50	63.5	1.73	44
C4G213-32-32	2	2	8.41	214	5.84	148	3.13	79.4	2.20	56

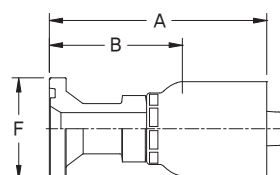
13 Series

C9G213 SAE Coe 62 Flange 90° Elbow



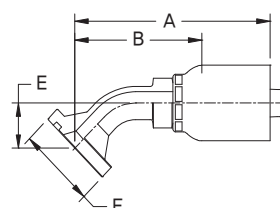
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C9G213-12-12	3/4	3/4	4.00	102	2.24	57	1.63	41.3	2.28	58
C9G213-12-1280	3/4	3/4	4.00	102	2.24	57	1.63	41.3	3.15	80
C9G213-12-12130	3/4	3/4	4.02	102	2.26	57	1.63	41.3	5.12	130
C9G213-16-12	1	3/4	4.00	102	2.24	57	1.88	47.6	2.28	58
C9G213-16-1290	1	3/4	4.06	103	2.30	58	1.88	47.6	3.54	90
C9G213-16-16	1	1	4.63	118	2.78	71	1.88	47.6	2.76	70
C9G213-16-16130	1	1	4.70	119	2.85	72	1.88	47.6	5.12	130
C9G213-20-16	1-1/4	1	4.64	118	2.79	71	2.13	54.0	2.76	70
C9G213-20-16130	1-1/4	1	4.71	120	2.86	73	2.13	54.0	5.12	130
C9G213-20-20	1-1/4	1-1/4	6.09	155	3.70	94	2.13	54.0	3.54	90
C9G213-20-20147	1-1/4	1-1/4	6.09	155	3.70	94	2.13	54.0	5.79	147
C9G213-24-20	1-1/2	1-1/4	7.09	180	4.70	119	2.50	63.5	4.35	111
C9G213-24-24	1-1/2	1-1/2	6.52	166	4.30	109	2.50	63.5	4.09	104
C9G213-24-24140	1-1/2	1-1/2	6.54	166	4.33	110	2.50	63.5	5.51	140
C9G213-32-32	2	2	7.99	203	5.42	138	3.13	79.4	5.43	138

C1G113 SAE Coe 61 Flange Straight



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1G113-12-12	3/4	3/4	4.34	110	2.58	66	1.50	38.1
C1G113-16-16	1	1	4.59	117	2.74	70	1.75	44.5
C1G113-20-20	1-1/4	1-1/4	5.53	140	3.14	80	2.00	50.8
C1G113-24-24	1-1/2	1-1/2	5.16	131	2.95	75	2.38	60.3
C1G113-32-32	2	2	6.12	155	3.55	90	2.81	71.4

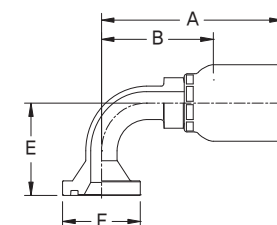
C4G113 SAE Coe 61 Flange 45° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C4G113-12-12	3/4	3/4	4.31	110	2.55	65	1.50	38.1	1.02	26
C4G113-16-16	1	1	5.01	127	3.16	80	1.75	44.5	1.26	32
C4G113-20-20	1-1/4	1-1/4	6.34	161	3.95	100	2.00	50.8	1.38	35
C4G113-24-24	1-1/2	1-1/2	7.01	178	4.80	122	2.38	60.3	1.69	43

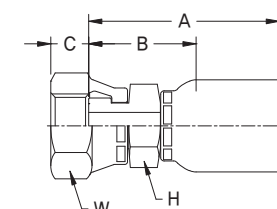
13 Series

C9G113 SAE Coe 61 Flange 90° Elbow



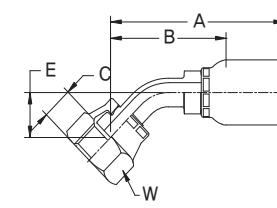
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C9G113-12-12	3/4	3/4	4.02	102	2.26	57	1.50	38.1	2.28	58
C9G113-12-1290	3/4	3/4	4.02	102	2.26	57	1.50	38.1	3.54	90
C9G113-12-12130	3/4	3/4	4.02	102	2.26	57	1.50	38.1	5.12	130
C9G113-16-12	1	3/4	4.03	102	2.27	58	1.75	44.5	2.28	58
C9G113-16-1280	1	3/4	4.07	103	2.31	59	1.75	44.5	3.15	80
C9G113-16-12130	1	3/4	4.07	103	2.31	59	1.75	44.5	5.12	130
C9G113-16-16	1	1	4.67	118	2.82	72	1.75	44.5	2.76	70
C9G113-16-16130	1	1	4.67	118	2.82	72	1.75	44.5	5.12	130
C9G113-20-20	1-1/4	1-1/4	6.77	172	4.38	111	2.00	50.8	2.99	76
C9G113-24-20	1-1/2	1-1/2	7.17	182	4.78	122	2.38	60.3	3.94	100
C9G113-24-24	1-1/2	1-1/2	6.52	166	4.30	109	2.38	60.3	4.09	104
C9G113-32-32	2	2	8.25	210	5.68	144	2.81	71.4	4.72	120

C1R13 Female "SEAL-LOK" Swivel Straight O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	UN	inch	inch	mm			inch	mm	inch	mm
C1R13-12-12	1-3/16X12	3/4	3.17	81	1-1/8	1-3/8	1.41	36	0.54	13.7
C1R13-12-12	1-3/16X12	3/4	3.17	81	1-1/8	1-3/8	1.41	36	0.54	13.7
C1R13-12-12M	1-3/16X12	3/4	3.17	81	32	36	1.41	36	0.54	13.7

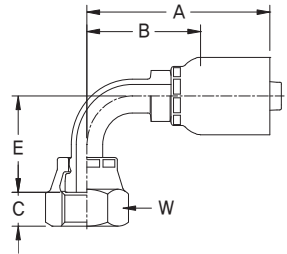
C4R13 Female "SEAL-LOK" Swivel 45° Elbow O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C4R13-12-12	1-3/16X12	3/4	4.11	104	1-3/8	2.35	60	0.83	21	0.54	13.7
C4R13-12-12M	1-3/16X12	3/4	4.11	104	36	2.35	60	0.83	21	0.54	13.7
C4R13-16-16	1-7/16X12	1	4.69	119	1-5/8	2.84	72	0.94	24	0.55	14.0
C4R13-16-16M	1-7/16X12	1	4.69	119	41	2.84	72	0.94	24	0.55	14.0

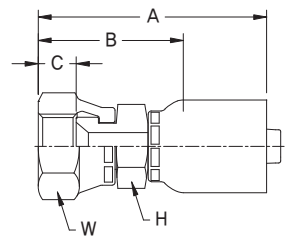
13 Series

C9R13 Female "SEAL-LOK" Swivel 90° Elbow (Short) O-Ring Face Seal



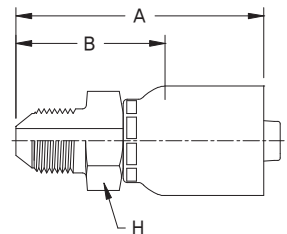
Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9R13-12-12	1-3/16X12	3/4	3.97	101	1-3/8	2.21	56	1.93	49	0.54	13.7
C9R13-12-12M	1-3/16X12	3/4	3.97	101	36	2.21	56	1.93	49	0.54	13.7
C9R13-16-16	1-7/16X12	1	4.62	117	1-5/8	2.77	70	2.20	56	0.55	14.0
C9R13-16-16M	1-7/16X12	1	4.62	117	41	2.77	70	2.20	56	0.55	14.0
C9R13-16-16100	1-7/16X12	1	4.71	120	1-5/8	2.86	73	3.94	100	0.55	14.0

C1X13 Female SAE 37° Swivel



Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	UN	inch	inch	mm			inch	mm	inch	mm
C1X13-12-12	1-1/16X12	3/4	3.65	93	1-1/8	1-1/4	1.89	48	0.56	14.2
C1X13-16-16	1-5/16X12	1	4.02	102	1-3/8	1-1/2	2.17	55	0.60	15.2
C1X13-20-20	1-5/8X12	1-1/4	4.91	125	1-3/4	2	2.52	64	0.62	15.7
C1X13-24-24	1-7/8X12	1-1/2	5.03	128	2	2-1/4	2.82	72	0.74	18.8
C1X13-32-32	2-1/2X12	2	5.89	150	2-1/2	2-7/8	3.32	84	0.93	23.6

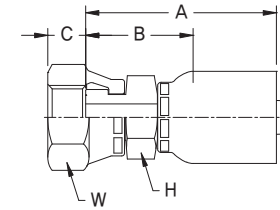
C1Y13 Male SAE 37°



Part No.	Thread Size	Hose Size	A		Hex H	Cut-Off Allowance B	
	UN	inch	inch	mm		inch	mm
C1Y13-16-16	1-5/16X12	1	3.81	97	1-3/8	1.96	50

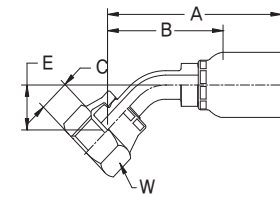
CT Series

C1RCT Female "SEAL-LOK" Swivel Straight O-Ring Face Seal



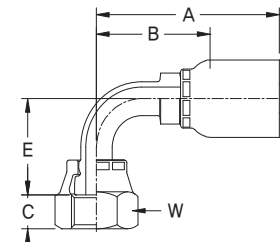
Part No.	Thread Size	Hose Size	A		Hex H	Hex W	Cut-Off Allowance B		NUT C	
	UN	inch	inch	mm			inch	mm	inch	mm
C1RCT-04-04	9/16X18	1/4	40.1	17	19		28		8.1	
C1RCT-06-06	11/16X16	3/8	41.7	19	22		20.3		9.7	
C1RCT-08-08	13/16X16	1/2	45.6	22	24		26		10.9	

C4RCT Female "SEAL-LOK" Swivel 45° Elbow O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C4RCT-04-04	9/16X18	1/4	56	19		33.3		10		8.1	
C4RCT-06-06	11/16X16	3/8	61.5	22		30		11		9.7	
C4RCT-08-08	13/16X16	1/2	71.0	24		37		15		10.9	

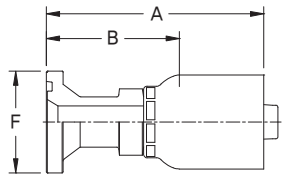
C9RCT Female "SEAL-LOK" Swivel 90° Elbow (Short) O-Ring Face Seal



Part No.	Thread Size	Hose Size	A		Hex W	Cut-Off Allowance B		DROP E		NUT C	
	UN	inch	inch	mm		inch	mm	inch	mm	inch	mm
C9RCT-04-04	9/16X18	1/4	46	19		24		21		8.1	
C9RCT-06-06	11/16X16	3/8	50	22		27		23		9.7	
C9RCT-08-08	13/16X16	1/2	57.2	24		31.2		29		10.9	

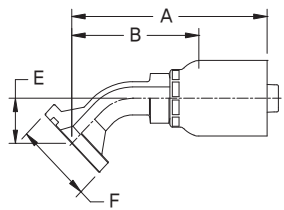
CA Series

C1CA13 Flange Straight



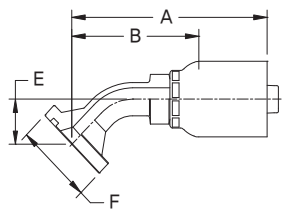
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F	
		inch	inch	mm	inch	mm	inch	mm
C1CA13-12-12	3/4	3/4	4.34	110	2.58	66	1.50	38.1
C1CA13-16-16	1	1	4.59	117	2.74	70	1.75	44.5
C1CA13-20-20	1-1/4	1-1/4	5.53	140	3.14	80	2.00	50.8
C1CA13-24-24	1-1/2	1-1/2	5.16	131	2.95	75	2.38	60.3
C1CA13-32-32	2	2	6.12	155	3.55	90	2.81	71.4

C2CA13 Flange 22.5° Elbow



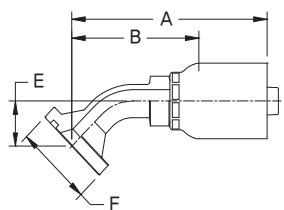
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C2CA13-12-12	3/4	3/4	4.65	118.0	2.80	71.0	1.50	38.1	0.71	18.0
C2CA13-16-16	1	1	7.40	188.0	5.35	136.0	1.75	44.5	3.31	84.0
C2CA13-20-20	1-1/4	1-1/4	6.81	173.0	4.33	110.0	2.00	50.8	1.10	28.0
C2CA13-24-24	1-1/2	1-1/2	7.28	185.0	5.00	127.1	2.37	60.3	1.15	29.1
C2CA13-32-32	2	2	8.23	209.1	5.78	146.9	2.81	71.4	1.22	31.0

C3CA13 Flange 30° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C3CA13-12-12	3/4	3/4	4.45	113.0	2.68	68.0	1.50	38.1	0.91	23.0
C3CA13-16-16	1	1	5.28	134.0	3.74	95.0	1.75	44.5	0.98	25.0
C3CA13-20-20	1-1/4	1-1/4	6.69	170.0	4.23	107.5	2.00	50.8	1.26	32.0
C3CA13-24-24	1-1/2	1-1/2	7.26	184.5	4.17	106.0	2.37	60.3	1.52	38.5
C3CA13-32-32	2	2	8.00	203.3	5.66	143.8	2.81	71.4	1.64	41.7

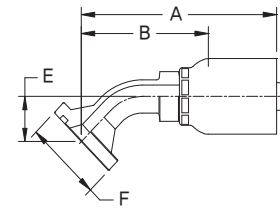
C4CA13 Flange 45° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C4CA13-12-12	3/4	3/4	4.31	110	2.55	65	1.50	38.1	1.02	26
C4CA13-16-16	1	1	5.01	127	3.16	80	1.75	44.5	1.26	32
C4CA13-20-20	1-1/4	1-1/4	6.34	161	3.95	100	2.00	50.8	1.38	35
C4CA13-24-24	1-1/2	1-1/2	7.01	178	4.80	122	2.38	60.3	1.69	43

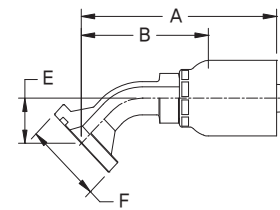
CA Series

C6CA13 Flange 60° Elbow



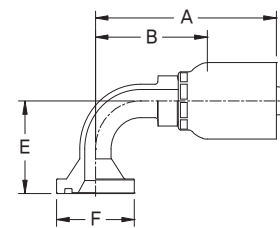
Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C6CA13-12-12	3/4	3/4	4.76	121.0	2.80	71.0	1.50	38.1	2.17	55.0
C6CA13-16-16	1	1	5.51	140.0	3.98	101.0	1.75	44.5	2.48	63.0
C6CA13-20-20	1-1/4	1-1/4	7.17	182.0	4.69	119.0	2.00	50.8	3.19	81.0
C6CA13-24-24	1-1/2	1-1/2	8.35	212.0	5.87	149.1	2.37	60.3	4.63	117.6
C6CA13-32-32	2	2	9.35	237.6	6.83	173.5	2.81	71.4	4.26	108.1

C7CA13 Flange 67.5° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C7CA13-12-12	3/4	3/4	4.61	117.0	2.64	67.0	1.50	38.1	2.20	56.0
C7CA13-16-16	1	1	5.16	131.0	6.62	92.0	1.75	44.5	6.19	81.0
C7CA13-20-20	1-1/4	1-1/4	6.89	175.0	4.41	112.0	2.00	50.8	3.35	85.0
C7CA13-24-24	1-1/2	1-1/2	7.94	201.8	5.26	133.6	2.37	60.3	4.09	103.8
C7CA13-32-32	2	2	9.25	235.0	6.51	165.4	2.81	71.4	4.55	115.6

C9CA13 Flange 90° Elbow



Part No.	FLANGE Size	Hose Size	A		Cut-Off Allowance B		FLANGE DIA. F		DROP E	
		inch	inch	mm	inch	mm	inch	mm	inch	mm
C9CA13-12-12	3/4	3/4	4.02	102	2.26	57	1.50	38.1	2.28	58
C9CA13-12-1290	3/4	3/4	4.02	102	2.26	57	1.50	38.1	3.54	90
C9CA13-12-12130	3/4	3/4	4.02	102	2.26	57	1.50	38.1	5.12	130
C9CA13-16-12	1	3/4	4.03	102	2.27	58	1.75	44.5	2.28	58
C9CA13-16-1280	1	3/4	4.07	103	2.31	59	1.75	44.5	3.15	80
C9CA13-16-12130	1	3/4	4.07	103	2.31	59	1.75	44.5	5.12	130
C9CA13-16-16	1	1	4.67	118	2.82	72	1.75	44.5	2.76	70
C9CA13-16-16130	1	1	4.67	118	2.82	72	1.75	44.5	5.12	130
C9CA13-20-20	1-1/4	1-1/4	6.77	172	4.38	111	2.00	50.8	2.99	76
C9CA13-24-20	1-1/2	1-1/4	7.17	182	4.78	122	2.38	60.3	3.94	100
C9CA13-24-24	1-1/2	1-1/2	6.52	166	4.30	109	2.38	60.3	4.09	104
C9CA13-32-32	2	2	8.25	210	5.68	144	2.81	71.4	4.72	120

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