СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ РОСС KR.MO10.H01733

Срок действия с 06.03.2018 по 05.03.2021

№ 0209494

ОРГАН ПО СЕРТИФИКАЦИИ Общество с ограниченной ответственностью «ЦЕНТР-СТАНДАРТ». Место нахождения: 119119, Российская Федерация, город Москва, Ленинский проспект, дом 42, корпус 1-2-3, этаж 1, помещение I, комната 35. Адрес места осуществления деятельности: 117405, Российская Федерация, город Москва, улица Кирпичные Выемки, дом 2, корпус 1, 3-й этаж, комната № 11. Телефон: +7 (495) 664-23-98, адрес электронной почты: info@standart-centr.ru. Аттестат аккредитации регистрационный № RA.RU.11MO10. Дата регистрации аттестата аккредитации: 20.08.2015 года

ПРОДУКЦИЯ Фитинги трубные и соединения трубопроводов с высоким давлением марки «S-LOK» (см. приложение - бланки №№ 0035046, 0035047) Серийный выпуск

код ОК

034-2014 (КПЕС 2008) 24.20.40.000

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ

ГОСТ 15763-2005 (пп. 5.2.1, 5.2.5, 5.2.7, 5.2.21, 5.2.25, 5.2.31, 5.3.1, 5.3.2)
ГОСТ 12.2.003-91; ГОСТ 12.2.063-2015; ГОСТ Р 55599-2013

код ТН ВЭД

7307 29 100 8, 7307 29 800 9

ИЗГОТОВИТЕЛЬ «HANSUN ENGINEERING CO., LTD»
Адрес: 27 Noksansandan 361-Ro, Songjeong-Dong, Gangseo-Gu, Busan, КОРЕЯ, РЕСПУБЛИКА

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Адрес: 142180, Московская область, город Подольск, микрорайон Климовск, улица Советская, дом 12, помещение VI
Телефон: 7(495)507-70-97, E-mail: welcome@dk-service.ru,
ИНН: 5021016233

НА ОСНОВАНИИ протокола испытаний № 093-03/12-ЦСТ от 02.03.2018 года, выданного испытательной лабораторией «ЦСТ-Испытания» Общества с ограниченной ответственностью «ЦЕНТР-СТАНДАРТ», аттестат аккредитации регистрационный № РОСС RU.31485.04ИДЮ0.004.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Схема сертификации: 2.

М.П.

Руководитель органа подпись Е.Н. Ушаков (инициалы, фамилия)

Эксперт подпись С.П. Павлов (инициалы, фамилия)

Сертификат не применяется при обязательной сертификации

АО «ОПЦИОН», Москва, 2017, «В» лицензия № 05-05-09/003 ФНС РФ, тел. (495) 726 4742, www.opcion.ru

СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

№ 0035046

ПРИЛОЖЕНИЕ

К сертификату соответствия № РОСС KR.MO10.H01733

Перечень конкретной продукции, на которую распространяется действие сертификата соответствия

код ОК код ТН ВЭД	Наименование и обозначение продукции, ее изготовитель	Обозначение документации, по которой выпускается продукция
034-2014 (КПЕС 2008) 7307 29 100 8, 7307 29 800 9	Фитинги трубные и соединения трубопроводов с высоким давлением марки «S-LOK»:	Согласно документации изготовителя по стандарту ASME B31.3
	Фитинги трубные обжимные «S-LOK» серии: SAA, SAB, SAF, SAM, SAG, SBUW, SC, SCBF, SCF, SCG, SCOP, SCOS, SCP, SCRP, SCSW, SCW, SI, SFI, SFT, SL, SLBM, SLBS, SLF, SLM, SLS, SLSW, SLW, SMC, SMCB, SMCS, SMCT, SMS, SOM, SP, SR, ST, STBF, STBM, STBS, STR, STRF, STRM, STRS, SU, SUA, SUB, SUBA, SUR, SX, SEU включая гайки, обжимные и уплотнительные кольца, шайбы серии: SFB, SFF, SFS, SN, SGB, SGC, SGG, SIG, SCG, SGV, XOR	
	Фитинги резьбовые и приварные «S-LOK» серии: P-SCN, P-SHN, P-SHRN, P-SHN, P-SHLN, P-MFAA, P-MFRA, P-MFAB, P-SHB, P-SC, P-SP, P-SHC, P-SHRC, P-SL, P-SSL, P-SRSL, P-SML, P-ST, P-SRT, P-SBT, P-SMT, P-SUJ, P-SWFC, P-SWL, P-SWLA, P-SWT, P-SWTA, P-SWMC, P-SWFCN, P-SWML, P-SMLSW, P-SWFL, P-SWRM, P-SSA, P-SSB, P-SSLSW, P-SFLSW, P-SWRM, SWAGE, NIPPLE, P-SVP, SWLA, SWLB, SWTA, SWXA, SWFC, SWHC, SWCA, SWBA, SWUA, SWUAO, SWMC-R, SWMC-N, SWMC-G, SWMC, SWRM, SWRC, SWBR, SLA, SLB, STA	
	Фитинги трубные «S-LOK» по стандарту DIN 2353 серии: DD, DDU, DDL, DDUR, DDT, DDC, DDTR, DDBU, DDBUW, DDBL, DDOM, DDOM-U, DDOM-M, DDMC, DDMC-R, DDMC-G, DDMC-M, DDMC-GED, DDMC-MED, DDMC-N, DDLM, DDLM-R, DDLM-M, DDFC, DDFC-G, DDFC-M, DDLA, DDBTA, DDRTA, DDEW, DDET, DDEL, DDKOR, DDR, DDRED, DDA, DDA-GED, DDA-MED, DDEGE, DDEGE-G, DDEGE-M, DDUE, DDSWVE, DDSWVE-G, DDSWVE-M, DDWH, DDWH-G, DDWH-M, DDTH, DDTH-G, DDTH-M, DDGC, DDGC-G, DDGE, DDGE-G, DDGA, DDGA-G, DDGMA, DDEMA3, DDAS, DDASK, DDAK, DDAKR, DMFAD, DMFAE, DMFAD, DMFAD-ED, DDVSTI-GED, DDVSTI-MED, DDVSTI, DDVKA, DDCA, DDN, DDS	
	Фитинги трубные «S-LOK» по стандарту JIS B 2351 серии: BU, BL, BT, BBU, BBL, BLMC, BMC, BOM, BLM, BLLM, BOLM, BSLM, BBTM, BRTM, BBFC, BFC, BGC, BLF, BBTF, BRTF, BJ, BC, BP, BN, BS, BHUM, BHUF, BHBM, BHBF, BHLM, BHLF, BHBLM, BHBLF, BCW, BBUW, BA, BR, BLA, BBTA, BRTA, BAP	
	Фитинги трубные «S-LOK» с уплотнительным кольцом серии: SCO-GU, SCO-BU, SCO-BMC, SCO-GSC, SCO-BBU, SCO-BFC, SCO-GA, SCO-BUR, SCO-BLM, SCO-GSWC, SCO-BL, SCO-BUS, SCO-GSWR, SCO-BT, SCO-BLS, SCO-GWC, SCO-BSC, SCO-GWAC, SCO-BSCB, SCO-NUT, SCO-GMC, SCO-BSL, SCO-BLNUT, SCO-GFC, SCO-BSWC, SCO-CAP, SCO-GUS, SCO-BWAC	

ОРГАН ПО СЕРТИФИКАЦИИ ПРОДУКЦИИ Общество с Ограниченной Ответственностью ЦЕНТР СЕРТИФИКАЦИИ "ЦЕНТР СТАНДАРТ" Для сертификатов RU 11MO10

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СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

№ 0035047

ПРИЛОЖЕНИЕ

К сертификату соответствия № РОСС KR.MO10.H01733

Перечень конкретной продукции, на которую распространяется действие сертификата соответствия

код ОК код ТН ВЭД	Наименование и обозначение продукции, ее изготовитель	Обозначение документации, по которой выпускается продукция
034-2014 (КПЕС 2008) 7307 29 100 8, 7307 29 800 9		
	Фитинги и соединения быстроразъемные «S-LOK» серии: SQ, SQCT	
	Фитинги «S-LOK» для присоединения рукавов гибких серии: SPHS, SPHA, SPHM, SPHU	
	Фитинги «S-LOK» для вакуума серии: UTU, UTL, UTT, UTUR, UTMC, UTA, UTUS, UTN	
	Фитинги трубные обжимные «S-LOK» с одним кольцом серии: SUO, SLO, SURO, STO, SXO, SUBO, SMCO-N, SMCO-R, SMCTO, SMCO-G, SOMO, SMCBO, SLBMO, SLMO, STRMO, STBMO, SCFO, SCGO, SCBFO, SLFO, STRFO, STBFO, SRO, SABO, SAM, SAF, SAG, SCP, SCRP, SUAO, SUBAO, SAAO, SMCSO, SLSO, SLBSO, STRSO, STBSO, SCOSO, SCOPO, SCWO, SLWO, SCSWO, SLSWO, SBUWO, SP, SCO, SI, включая гайки и обжимные кольца серии: SNO, SFO, SFSO	
	Фитинги трубные «S-LOK» по стандарту SAE J514 и ISO 8434-2 серии: JU, JL, JT, JX, JUB, JUBW, JBL, JMC, JLM, JTRM, JTBM, JLBM, JCBF, JCBF, JLF, JTRF, JTBF, JMCS-G, JMCS-U, JLS-U, JLBS-U, JTRS-U, JTBS-U, JSMC, JSMCS-U, JSCF, JSL, JSTR, JSTB, JN, JS, JP, JPP, JPR, JLN	
	Фитинги трубные «S-LOK» для чистых сред: SMF-MUL, SMF-MULR, SMF-MULS, SMF-MUT, SMF-MUTR, SMF-MUX, SMF-MUTB, SMF-MUR, SMF-UL, SMF-ULR, SMF-UT, SMF-UTR, SMF-UTX, SMF-UR, SCR-GFM, SCR-GM, SCR-GSW, SCR-GSWR, SCR-GB, SCR-GMW, SCR-GA, SCR-BU, SCR-BUR, SCR-BBU, SCR-BTBW, SCR-BBTBW, SCR-BCP, SCR-BFUR, SCR-BAR, SCR-BBSR, SCR-BL, SCR-BLM, SCR-BT, SCR-BX, SCR-SMC, SCR-SMCB, SCR-MC, SCR-MBC, SCR-OMCS, SCR-FC, SCR-KR, SCR-K, SCR-KB, SCR-FNUT, SCR-MNUT, SCR-P, SCR-CP, SCR-PC, SCR-CPC, SMFS-MUL, SMFS-MULR, SMFS-MULS, SMFS-MUT, SMFS-MUTR, SMFS-MUX, SMFS-MUTB, SMFS-MUR, SMFS-UL, SMFS-ULR, SMFS-UT, SMFS-UTR, SMFS-UTX, SMFS-UR, SCRS-GFM, SCRS-GM, SCRS-GSW, SCRS-GSWR, SCRS-GB, SCRS-GMW, SCRS-GA, SCRS-BU, SCRS-BUR, SCRS-BBU, SCRS-BTBW, SCRS-BBTBW, SCRS-BCP, SCRS-BFUR, SCRS-BAR, SCRS-BBSR, SCRS-BL, SCRS-BLM, SCRS-BT, SCRS-BX, SCRS-SMC, SCRS-SMCB, SCRS-MC, SCRS-MBC, SCRS-OMCS, SCRS-FC, SCRS-KR, SCRS-K, SCRS-KB, SCRS-FNUT, SCRS-MNUT, SCRS-P, SCRS-CP, SCRS-PC, SCRS-CPC	
	«HANSUN ENGINEERING CO., LTD» Адрес: 27 Noksansandan 361-Ro, Songjeong-Dong, Gangseo-Gu, Busan, КОРЕЯ, РЕСПУБЛИКА	

ОРГАН ПО СЕРТИФИКАЦИИ ПРОДУКЦИИ Общество с Ограниченной Ответственностью ЦЕНТР СЕРТИФИКАЦИИ "ЦЕНТР-СТАНДАРТ" Для сертификатов RA RU 11MO10

М.П.

Руководитель органа подпись Е.Н. Ушаков (инициалы, фамилия)

Эксперт подпись С.П. Павлов (инициалы, фамилия)

Общество с ограниченной ответственностью «ЦЕНТР-СТАНДАРТ»

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ОГРН 1147748151297 ИНН 7719078658 КПП 771901001
Телефон: + 7 (495) 664-23-98; e-mail: info@standart-centr.ru

Исх. № ЦС-1121 от «02» 03 2018 г.

ООО «ДК+Сервис»
Адрес: 142180, Московская область, город Подольск, микрорайон Климовск, улица Советская, дом 12, помещение VI

Информационное письмо.

Орган по сертификации продукции ООО «ЦЕНТР-СТАНДАРТ» (Аттестат аккредитации: № RA.RU.11MO10) информирует Вас о том, что указанная ниже продукция, **не подлежит** обязательному подтверждению соответствия по техническому регламенту Таможенного союза «О безопасности низковольтного оборудования» (ТР ТС 004/2011), утвержденному Решением Комиссии Таможенного союза от 16.08.2011 № 768, техническому регламенту Таможенного союза «Электромагнитная совместимость технических средств» (ТР ТС 020/2011), утвержденному Решением Комиссии Таможенного союза от 09.12.2011 № 879, техническому регламенту Таможенного союза «О безопасности машин и оборудования» (ТР ТС 010/2011), утвержденному Решением Комиссии Таможенного союза от 18 октября 2011г. № 823, техническому регламенту Таможенного союза «О безопасности оборудования, работающего под избыточным давлением» (ТР ТС 032/2013), утвержденному Решением Комиссии Таможенного союза от 02 июля 2013, № 41:

Наименование продукции	***Код ТН ВЭД***
Соединения трубопроводов с высоким давлением марки «S-LOK» (Рабочая среда – газ, номинальный диаметр - 25 мм, рабочее давление - 63 МПа):	
1) Фитинги трубные обжимные «S-LOK» серии: SAA, SAB, SAF, SAM, SAG, SBUW, SC, SCBF, SCF, SCG, SCOP, SCOS, SCP, SCRP, SCSW, SCW, SI, SFI, SFT, SL, SLBM, SLBS, SLF, SLM, SLS, SLSW, SLW, SMC, SMCB, SMCS, SMCT, SMS, SOM, SP, SR, ST, STBF, STBM, STBS, STR, STRF, STRM, STRS, SU, SUA, SUB, SUBA, SUR, SX, SEU включая гайки, обжимные и уплотнительные кольца, шайбы серии: SFB, SFF, SFS, SN, SGB, SGC, SGG, SIG, SCG, SGV, XOR *2) Фитинги резьбовые и приварные «S-LOK» серии: P-SCN, P-SHN, P-SHRN, P-SHN, P-SHLN, P-MFAA, P-MFRA, P-MFAB, P-SHB, P-SC, P-SP, P-SHC, P-SHRC, P-SL, P-SSL, P-SRSL, P-SML, P-ST, P-SRT, P-SBT, P-SMT, P-SUJ, P-SWFC, P-SWL, P-SWLA, P-SWT, P-SWTA, P-SWMC, P-SWFCN, P-SWML, P-SMLSW, P-SWFL, P-SWRM, P-SSA, P-SSB, P-SSLSW, P-SFLSW, P-SWRM, SWAGE, NIPPLE, P-SVP, SWLA, SWLB, SWTA, SWXA, SWFC, SWHC, SWCA, SWBA, SWUA, SWUAO,*	***7307291008, 7307298009***

Общество с ограниченной ответственностью «ЦЕНТР-СТАНДАРТ»

Адрес места нахождения:
119119, г. Москва, Ленинский проспект, д. 42, корпус 1-2-3, эт. 1, пом. I, ком. 35
ОГРН 1147748151297 ИНН 7719078658 КПП 771901001
Телефон: + 7 (495) 664-23-98; e-mail: info@standart-centr.ru

SWMC-R, SWMC-N, SWMC-G, SWMC, SWRM, SWRC, SWBR, SLA, SLB, STA *3) Фитинги трубные «S-LOK» по стандарту DIN 2353 серии: DD, DDU, DDL, DDUR, DDT, DDC, DDTR, DDBU, DDBUW, DDBL, DDOM, DDOM-U, DDOM-M, DDMC, DDMC-R, DDMC-G, DDMC-M, DDMC-GED, DDMC-MED, DDMC-N, DDLM, DDLM-R, DDLM-M, DDFC, DDFC-G, DDFC-M, DDLA, DDBTA, DDRTA, DDEW, DDET, DDEL, DDKOR, DDR, DDRED, DDA, DDA-GED, DDA-MED, DDEGE, DDEGE-G, DDEGE-M, DDUE, DDSWVE, DDSWVE-G, DDSWVE-M, DDWH, DDWH-G, DDWH-M, DDTH, DDTH-G, DDTH-M, DDGC, DDGC-G, DDGE, DDGE-G, DDGA, DDGA-G, DDGMA, DDEMA3, DDAS, DDASK, DDAK, DDAKR, DMFAD, DMFAE, DMFAD, DMFAD-ED, DDVSTI-GED, DDVSTI-MED, DDVSTI, DDVKA, DDCA, DDN, DDS* *4) Фитинги трубные «S-LOK» по стандарту JIS B 2351 серии: BU, BL, BT, BBU, BBL, BLMC, BMC, BOM, BLM, BLLM, BOLM, BSLM, BBTM, BRTM, BBFC, BFC, BGC, BLF, BBTF, BRTF, BJ, BC, BP, BN, BS, BHUM, BHUF, BHBM, BHBF, BHLM, BHLF, BHBLM, BHBLF, BCW, BBUW, BA, BR, BLA, BBTA, BRTA, BAP* *5) Фитинги трубные «S-LOK» с уплотнительным кольцом серии: SCO-GU, SCO-BU, SCO-BMC, SCO-GSC, SCO-BBU, SCO-BFC, SCO-GA, SCO-BUR, SCO-BLM, SCO-GSWC, SCO-BL, SCO-BUS, SCO-GSWR, SCO-BT, SCO-BLS, SCO-GWC, SCO-BSC, SCO-GWAC, SCO-BSCB, SCO-NUT, SCO-GMC, SCO-BSL, SCO-BLNUT, SCO-GFC, SCO-BSWC, SCO-CAP, SCO-GUS, SCO-BWAC* *6) Фитинги и соединения быстроразъемные «S-LOK» серии: SQ, SQCT* *7) Фитинги «S-LOK» для присоединения рукавов гибких серии: SPHS, SPHA, SPHM, SPHU* *8) Фитинги «S-LOK» для вакуума серии: UTU, UTL, UTT, UTUR, UTMC, UTA, UTUS, UTN* *9) Фитинги трубные обжимные «S-LOK» с одним кольцом серии: SUO, SLO, SURO, STO, SXO, SUBO, SMCO-N, SMCO-R, SMCTO, SMCO-G, SOMO, SMCBO, SLBMO, SLMO, STRMO, STBMO, SCFO, SCGO, SCBFO, SLFO, STRFO, STBFO, SRO, SABO, SAM, SAF, SAG, SCP, SCRP, SUAO, SUBAO, SAAO, SMCSO, SLSO, SLBSO, STRSO, STBSO, SCOSO, SCOPO, SCWO, SLWO, SCSWO, SLSWO, SBUWO, SP, SCO, SI, включая гайки и обжимные кольца серии: SNO, SFO, SFSO* *10) Фитинги трубные «S-LOK» по стандарту SAE J514 и ISO*	

Общество с ограниченной ответственностью «ЦЕНТР-СТАНДАРТ»

Адрес места нахождения:
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ОГРН 1147748151297 ИНН 7719078658 КПП 771901001
Телефон: + 7 (495) 664-23-98; e-mail: info@standart-centr.ru

8434-2 серии: JU, JL, JT, JX, JUB, JUBW, JBL, JMC, JLM, JTRM, JTBM, JLBM, JCBF, JCBF, JLF, JTRF, JTBF, JMCS-G, JMCS-U, JLS-U, JLBS-U, JTRS-U, JTBS-U, JSMC, JSMCS-U, JSCF, JSL, JSTR, JSTB, JN, JS, JP, JPP, JPR, JLN *11) Фитинги трубные «S-LOK» для чистых сред: SMF-MUL, SMF-MULR, SMF-MULS, SMF-MUT, SMF-MUTR, SMF-MUX, SMF-MUTB, SMF-MUR, SMF-UL, SMF-ULR, SMF-UT, SMF-UTR, SMF-UTX, SMF-UR, SCR-GFM, SCR-GM, SCR-GSW, SCR-GSWR, SCR-GB, SCR-GMW, SCR-GA, SCR-BU, SCR-BUR, SCR-BBU, SCR-BTBW, SCR-BBTBW, SCR-BCP, SCR-BFUR, SCR-BAR, SCR-BBSR, SCR-BL, SCR-BLM, SCR-BT, SCR-BX, SCR-SMC, SCR-SMCB, SCR-MC, SCR-MBC, SCR-OMCS, SCR-FC, SCR-KR, SCR-K, SCR-KB, SCR-FNUT, SCR-MNUT, SCR-P, SCR-CP, SCR-PC, SCR-CPC, SMFS-MUL, SMFS-MULR, SMFS-MULS, SMFS-MUT, SMFS-MUTR, SMFS-MUX, SMFS-MUTB, SMFS-MUR, SMFS-UL, SMFS-ULR, SMFS-UT, SMFS-UTR, SMFS-UTX, SMFS-UR, SCRS-GFM, SCRS-GM, SCRS-GSW, SCRS-GSWR, SCRS-GB, SCRS-GMW, SCRS-GA, SCRS-BU, SCRS-BUR, SCRS-BBU, SCRS-BTBW, SCRS-BBTBW, SCRS-BCP, SCRS-BFUR, SCRS-BAR, SCRS-BBSR, SCRS-BL, SCRS-BLM, SCRS-BT, SCRS-BX, SCRS-SMC, SCRS-SMCB, SCRS-MC, SCRS-MBC, SCRS-OMCS, SCRS-FC, SCRS-KR, SCRS-K, SCRS-KB, SCRS-FNUT, SCRS-MNUT, SCRS-P, SCRS-CP, SCRS-PC, SCRS-CPC*	

Оформление сертификата соответствия и принятие декларации о соответствии не требуется.

Руководитель ОС
ООО «ЦЕНТР-СТАНДАРТ» подпись Е.Н. Ушаков

Орган по сертификации продукции ООО «ЦЕНТР-СТАНДАРТ» RA.RU.11МО10

ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ЭКОЛОГИЧЕСКОМУ, ТЕХНОЛОГИЧЕСКОМУ
И АТОМНОМУ НАДЗОРУ
(РОСТЕХНАДЗОР)

ул. А.Лукьянова, д. 4, стр. 1, Москва, 105066
Телефон: (495) 411-60-45, Факс: (495) 411-60-52
E-mail: rostehnadzor@gosnadzor.ru
http://www.gosnadzor.ru
ОКПО 00083701, ОГРН 1047796607650
ИНН/КПП 7709561778/770901001

20.02.2013 № 11-00-19/99

На № 2/02 от 13.02.2013

О разрешении на применение
соединения трубопроводов

ООО «ДК+Сервис»
ул. Западная, 3а, офис 24,
г. Климовск, 142181

Федеральная служба по экологическому, технологическому и атомному надзору рассмотрела обращение ООО «ДК+Сервис» о необходимости получения разрешения на применение технических устройств на опасных производственных объектах для соединений трубопроводов на высокое давление, изготовленных Hansun Engineering Co., Ltd., и сообщает следующее.

В соответствии с пунктом 6 статьи 7 Федерального закона от 21.07.1997 № 116-ФЗ «О промышленной безопасности опасных производственных объектов» применение технических устройств на опасных производственных объектах осуществляется при условии получения разрешения, выдаваемого федеральным органом исполнительной власти в области промышленной безопасности, если иная форма оценки соответствия технических устройств, применяемых на опасном производственном объекте, обязательным требованиям к ним не установлена техническими регламентами.

Соединения трубопроводов на высокое давление, в соответствии с пунктом 3 статьи 1 технического регламента Таможенного союза «О безопасности машин и оборудования», принятого Решением Комиссии Таможенного союза от 18.10.2011 № 823, как оборудование для которого выявлены и идентифицированы виды опасности, требования к устранению или уменьшению которых установлены согласно приложениям № 1 и № 2 к техническому регламенту, и на которое

распространяет свое действие данный технический регламент, подлежат обязательной оценке соответствия требованиям технического регламента.

Кроме того, в соответствии с пунктом 28 перечня машин и оборудования, подлежащих обязательной сертификации для подтверждения соответствия требованиям технического регламента о безопасности машин и оборудования, утвержденного постановлением Правительства Российской Федерации от 15.09.2009 № 753, соединения трубопроводов на высокое давление подлежали обязательной сертификации для подтверждения соответствия требованиям данного технического регламента, как соединения трубопроводов с высоким давлением (от 10 МПа до 100 МПа).

Таким образом, Соединения трубопроводов на высокое давление (трубные фитинги «S-Lok», резьбовые и приварные фитинги «S-Lok», трубные фитинги «S-Lok» по стандарту DIN 2353, трубные фитинги «S-Lok» по стандарту JIS B 2351), изготовленные Hansun Engineering Co., Ltd. могут применяться на опасных производственных объектах без разрешения на применение технических устройств на опасных производственных объектах.

Получение разрешения на применение технических устройств на опасных производственных объектах в органах Ростехнадзора для Соединений трубопроводов на высокое давление (трубные фитинги «S-Lok», резьбовые и приварные фитинги «S-Lok», трубные фитинги «S-Lok» по стандарту DIN 2353, трубные фитинги «S-Lok» по стандарту JIS B 2351), изготовленных Hansun Engineering Co., Ltd. не требуется.

Врио начальника Правового управления Е.А. Селиверстова

И.Е. Спирин
(495) 657-91-78

CERTIFIED DISTRIBUTOR

DK+Service Ltd

Address : Russia, 142180, Moscow Oblast, Klimovsk, Sovetskaya str. 12, office VI

Certificate No. : **HSCOAA-1801-01-RU**

We, HanSun Engineering Co., Ltd, hereby confirm and approve that
DK+Service Ltd is our Certified Distributor in Russia.

January 1, 2018

HANSUN ENGINEERING CO.,LTD.
LEE, KAHPYOUNG PRESIDENT

Lee, Kahp Young
President

Kim, Samuel
Sales Manager

HanSun 한선엔지니어링(주) HANSUN ENGINEERING CO., LTD.
27 Noksansandan 361-ro, Songjeong-dong, Gangseo-gu, Busan, Korea
Tel : 82-51-899-6731 Fax :82-51-899-6789
S-LOK

Certificate of Qualified Distributor

Date: June 5th, 2013

Certificate No. : HSCOD-1306-01-DK

Area : Russia

Company Name : DK+Service Ltd

Address : Russia, 142181, Moscow Oblast, Klimovsk, Zapadnaya str. 3A, office 24

Product Scope : 1. Instrumentation Tube Fittings & Valves

2. Pipe Fittings

3. Flanges

4. Tube

We ' HanSun Engineering Co.,Ltd ' hereby confirm that DK+Service Ltd is our official distributor in Russia.

HANSUN ENGINEERING CO.,LTD.

LEE, JYEHOON PRESIDENT

signed by

The validity of this document till end of June. 5, 2015.

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
122404-2012-AQ-KOR-RvA

Initial certification date:
02 March, 2005

Valid:
10 December, 2015 - 15 September, 2018

This is to certify that the management system of

HANSUN ENGINEERING CO., LTD.

27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea

has been found to conform to the Quality Management System standard:
ISO 9001:2008, KS Q ISO 9001:2009

This certificate is valid for the following scope:
Design, Development, Manufacture and Services of Fittings, Valves and Machined Parts.

Place and date:
Seoul 19 November, 2015

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT
IAF
MGMT. SYS.
RvA C 024

The RvA is a signatory to the IAF MLA

For the issuing office:
DNV GL – Business Assurance
18F, Kyobo Bldg., 1, Jong-ro, Jongno-gu,
Seoul, Korea

In-Kyoon Ahn
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance B.V., ZWOLSEWEG 1, 2994 LB, BARENDRECHT, NETHERLANDS. TEL:+31102922689. assurance.dnvgl.com

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
127132-2012-AE-KOR-RvA

Initial certification date:
10 December, 2012

Valid:
10 December, 2015 - 15 September, 2018

This is to certify that the management system of

HANSUN ENGINEERING CO., LTD.

27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea

has been found to conform to the Environmental Management System standard:
ISO 14001:2004, KS I ISO 14001:2009

This certificate is valid for the following scope:
Design, Development, Manufacture and Services of Fittings, Valves and Machined Parts.

Place and date:
Seoul 19 November, 2015

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF
MGMT. SYS.
RvA C 024

The RvA is a signatory to the IAF MLA

For the issuing office:
DNV GL – Business Assurance
18F, Kyobo Bldg., 1, Jong-ro, Jongno-gu,
Seoul, Korea

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DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
127130-2012-HSO-KOR-DNV

Initial certification date:
10 December, 2012

Valid:
10 December, 2015 - 10 December, 2018

This is to certify that the management system of

HANSUN ENGINEERING CO., LTD.

27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea

has been found to conform to the Occupational Health and Safety Management System standard:
OHSAS 18001:2007

This certificate is valid for the following scope:
Design, Development, Manufacture and Services of Fittings, Valves and Machined Parts.

Place and date:
Seoul 19 November, 2015

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL

For the issuing office:
DNV GL – Business Assurance
18F, Kyobo Bldg., 1, Jong-ro, Jongno-gu,
Seoul, Korea

In-Kyoon Ahn
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance Korea Ltd., 18F, Kyobo Bldg., 1, Jong-ro, Jongno-gu,, Seoul, Korea.

CERTIFICATE NUMBER: BK2434160-X

PORT OFFICE: BUSAN, KOREA

Certificate of
MANUFACTURING ASSESSMENT

This is to certify that: The Undersigned did evaluate the relevant manufacturing quality procedures for the type of products of the manufacturer:

Hansun Engineering Co., Ltd. Plant at Busan, Korea

The methods of assuring and controlling quality during production as required by the ABS Rules or Guides for the product and the associated specifications or standard were verified to reflect the specific surveys, required by the Rules and Standards for the manufacture of:

Bite Type Fittings for DIN 2353, Bite Type Fittings for JIS B 2351 and S-Lok Type Tube Fittings

The manufacturer presented a sample or specimen of the product, representative of the "type" approved, to the undersigned, for the purpose of verifying that the "type" has been manufactured in conformance with the Manufacturer's Product Design Assessments.

This Certificate of Manufacturing Assessment is an evaluation of the manufacturer alone and is neither an approval nor a rejection of the product described above. Unless cancelled, expired or revoked, this certificate remains valid subject to annual audits

Consult the ABS Type Approval website to confirm the continued validity of this certificate and the status of the particular products being manufactured.

ISSUE DATE	**9 September 2013**	**EXPIRATION DATE**	**8 September 2018**

SURVEYOR Eun-Seok Yang

FIRST ANNUAL ENDORSEMENT

SECOND ANNUAL ENDORSEMENT

THIRD ANNUAL ENDORSEMENT

FOURTH ANNUAL ENDORSEMENT

Certificate Number: 08-BK369142-2-PDA
26/SEP/2013

Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 08/SEP/2018. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 26/SEP/2018 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Tube Fittings
Model Name(s): S-LOK TYPE TUBE FITTINGS

Presented to:
HANSUN ENGINEERING CO., LTD.
27, NOKSANSANDAN 361 (SAMBAEGYUKSIBIL)-RO
GANGSEO-GU
BUSAN
Korea, Republic of

Intended Service: Hydraulic & Pneumatic Fluid and Instrument Control Systems

Description: S-LOK TYPE TUBE FITTINGS TUBE TO TUBE UNION: Union(SU), Union Elbow(SL),Reducing Union(SUR),Union Tee(ST),Union Cross(SX) & Bulkhead Union(SUB). TUBE TO MAIE PIPE: Male Connector(SMC-N,SMC-R), Thermocouple Connector(SMCT),Male Connector for Bonded Seal(SMC-G),Male Connector for Metal Gasket(SOM),Bulkhead Male Connector(SMCB), 45 degree Male Elbow(SLBM),Male Elbow(SLM),Male Run Tee(STRM) & Male Branch Tee(STBM). TUBE TO FEMALE PIPE: Female Connector(SCF),Gauge Connector(SCG),Bulkhead Female Connector(SCBF),Female Elbow(SLF),Female Run Tee(STRF) & Female Branch Tee(STBF). STUB TUBE CONNECTORS: Reducer(SR), Bulkhead Adapter(SAB), Male Adapter(SAM), Female Adapter(SAF), Port Connector(SCP) & Reducing Port Connector(SCRP), Female Adapter(SAG) TUBE TO AN TUBES: AN Union(SUA), AN Bulkhead Union(SUBA) & AN Adapter(SAA). TUBE TO SAE O-RING SEAL: SAE Male Connector(SMCS), Positionable SAE Male Elbow(SLS), Positionable 45 degree SAE Male Elbow(SLBS), Positionable SAE Male Run Tee(STRS), Positionable SAE Male Branch Tee(STBS), O-Seal Straight Thread Connector(SCOS) & O-Seal Pipe Thread Connector(SCOP) TUBE TO WELD END: Male Pipe Weld Connector(SCW), Male Pipe Weld Elbow(SLW), Tube Socket Weld Connector(SCSW) & Tube Socket Weld Elbow(SLSW), Welding Bulkhead

	Union(SBUW) PLUGS & CAPS: Plug(SP), Cap(SC)
Ratings:	1. Raw Material: 304/L, 316/L Stainless Steel 2. Tube Size & Pressure Ratings: as per manufacturer's specification
Service Restrictions:	Unit Certification is not required for this product. The taper-thread joints are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495 C. In Classes I and II piping systems in general, for joining sections of hydraulic pipes and for steering gear, controllable pitch propeller and propulsion related hydraulic systems, their use is limited to the following restrictions: less than 20 mm ND for 103 bar; above 20 mm to 25mm ND for 82.8 bar and above 25 mm to 50 mm ND for 41.4 bar. In other hydraulic oil systems they may be used without pressure limitation only for connection for equipment, such as pumps, valves, cylinders, accumulators, gauges and hoses. Straight thread O-ring type fittings may be used for connections to equipment in hydraulic oil piping without pressure and service limitation, but are not to be used for joining sections of pipes. Bulkhead connectors, bulkhead reducers and bulkhead unions are not considered water tight of fire-tight penetration without separate approval of penetration detail.
Comments:	Not Applicable
Notes / Documentation:	This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.
Term of Validity:	This Product Design Assessment (PDA) Certificate 08-BK369142-2-PDA, dated 27/Sep/2013 remains valid until 26/Sep/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.
ABS Rules:	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The Rules applicable to this assessment are: 2013 Steel Vessel Rules 1-1-4/7.7, 4-6-2/5.5.5, 4-6-2/5.15, 4-6-2/5.17 & 4-6-7/3.5.1 2012 MODU Rules 4-2-2/1.3, 11.1 & 17
National Standards:	ASME B31.1(2012), SAE J1926(2010), ASME B1.1(2003)
International Standards:	
Government Authority:	
EUMED:	
Others:	Hansun Engineering Catalog (S-LOK-201207)

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	08-BK369142-2-PDA	27/SEP/2013	26/SEP/2018

ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

FOUNDED 1862

CERTIFICATE NUMBER
08-BK369142-PDA

DATE
25 August 2008

ABS TECHNICAL OFFICE
Busan Engineering Services

CERTIFICATE OF
DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of

HANSUN ENGINEERING CO., LTD. - BUSAN

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

PRODUCT: **Tube Fittings**

MODEL: **S-LOK TUBE FITTINGS**

This Design Assessment Certificate number 08-BK369142-PDA, dated 25/Aug/2008 will expire on 24/Aug/2013 or at an earlier date should there be alterations to the product's design or changes to the referenced ABS Rules and other specifications, which affect the product. Product use on or after 1 January 2009, will be subject to compliance with the ABS Rules or specifications in effect when the vessel, MODU or facility is contracted. The product's acceptability on board ABS-classed vessels or facilities is defined in the service restrictions of this certificate.

AMERICAN BUREAU OF SHIPPING

Yun-Hak Baek
Engineer

Korea

Choose certainty.
Add value.

Report Number: 74936710-1, Rev. 0

TÜV SÜD Korea Ltd.
12F, "KLI63" Bldg., #60,
Yoido-Dong, Youngdeungpo-Gu,
Seoul, 150-763, Korea

OG-AP1-SEL-AJTO
Telefon: +82 2 3215-1122
Telefax: +82 2 3215-1116
E-mail: byung-ho.bae@tuv-sud.kr

INSPECTION REPORT

Intermix and Interchange Tests

Tube fittings of S-LOK and Swagelok –

Pneumatic proof test,
Hydrostatic proof test,
Hydrostatic burst test, and
Helium leak test.

Client name:

HANSUN ENGINEERING CO., LTD.
(Songjeong-dong)27, Noksansandan 361-ro,
Gangseo-gu, Busan, Korea

August 30, 2013
Byung-Ho Bae, Inspector
TÜV SÜD Korea Ltd., Seoul

Table of Contents

1. General information

Client name	HANSUN ENGINEERING CO., LTD.
Contact person name of the client	Sung, SeeHong HANSUN ENGINEERING CO., LTD. (Songjeong-dong)27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea
Tel.	+82 51-899-6751
Fax.	+82 51-899-6788
Description of product	S-LOK tube fitting composes of four precision parts, which are body, nut, front ferrule and back ferrule.
S-LOCK	The brand name of HANSUNG ENGINEERING
ITP No.	HSEITP-1307-001 Rev.1
Test date	July 23 ~ 25, 2013 and August 27, 2013
Test site	<u>For pneumatic proof test and helium leak test</u> KGS (Korea Gas Safety Corporation) 11 Soraesan-gil, Daeya-dong, Siheung-Si, Gyeonggi-Do, Korea <u>For hydrostatic proof test and hydrostatic burst test</u> HANSUN ENGINEERING CO., LTD. (Songjeong-dong)27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea

2. Product information

The test object is verification of tightness of tube fittings of two brands, which are S-LOK and Swagelok, for interchange and intermix of their ferrules, nuts and bodies.

2.1. Preparation of test spools

2.1.1. Assembly instruction

1) Insert the tubing into the tube fittings until the tubing end bottoms on the shoulder of the fitting body. Make sure the nut finger-tightened
2) Tighten the nut 1-1/4 turn with a wrench by holding the fitting body with a back up wrench

2.2. Definition of intermix and interchange

2.2.1. Intermix: random mixing of components of different brands

2.2.2. Interchange: more specifically defined as the use of one brand nut and ferrule with another brand body

2.3. Spool description

2.3.1. Spool S-A

2.3.1.1. Interchange of S-LOK and Swagelok

2.3.1.2. Size: 1/4", 3/8", 1/2"

2.3.1.3. Maximum working pressure: 5,100 psi (35.2 MPa)

2.3.1.4. Combination: refer to Appendix 1

2.3.2. Spool S-B

2.3.2.1. Interchange of S-LOK and Swagelok

2.3.2.2. Size: 3/4", 1"

2.3.2.3. Maximum working pressure: 4,200 psi (29.0 MPa)

2.3.2.4. Combination: refer to Appendix 2

2.3.3. Spool S-C

2.3.3.1. Intermix of S-LOK and Swagelok

2.3.3.2. Size: 1/4", 3/8", 1/2", 3/4, 1"

2.3.3.3. Maximum working pressure: 4,200 psi (29.0 MPa)

2.3.3.4. Combination: refer to Appendix 3

2.4. Material of tube fittings

2.4.1. ASTM A276/479 Type316/316L(Bars)

2.4.2. ASTM A182 F316/316L(Forged)

2.5. Tubing information (ASTM A213/269 TP316/316L)

O.D Size	Thickness	Hardness(HRB)
1/4"	0.065"	78
3/8"	0.065"	74
1/2"	0.065"	77
3/4"	0.083"	86
1"	0.109"	78

2.6. Detail of tube fittings: refer to Appendix 4 ~ Appendix 11

3. Details of inspection

3.1. Summary

This inspection was carried out at Korea Gas Safety Corporation for pneumatic proof test and helium leak test, and at HANSUN ENGINEERING CO., LTD. for hydrostatic proof test and hydrostatic burst test.

The inspector carried out as bellow:

Required witness points:
(1) Pneumatic proof test
(2) Hydrostatic proof test
(3) Hydrostatic burst test
(4) Helium leak test

3.2. Test results

The inspector carried out the witness tests as following.

3.2.1. Pneumatic proof test

3.2.1.1. Test condition

3.2.1.1.1. Test method: ASTM F 1387-99, Annex 3

3.2.1.1.2. Test medium: nitrogen

3.2.1.1.3. Test pressure

3.2.1.1.3.1. Initial pressure: 0.69 Mpa

3.2.1.1.3.2. Increased pressure: 125% of maximu working pressure

3.2.1.1.4. Test sample: each one sample of Spool S-A, S-B and S-C

3.2.1.2. Results

3.2.1.2.1. Spool S-A

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 44.0 MPa during 5 min.	No leakage	No	-	-

3.2.1.2.2. Spool S-B

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 36.3 MPa during 5 min.	No leakage	No	-	-

3.2.1.2.3. Spool S-C

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 36.3 MPa during 5 min.	No leakage	No	-	-

3.2.1.3. Conclusion

The samples of Spool S-A, S-B and S-C passed the test.

3.2.2. Hydrostatic proof test

3.2.2.1. Test condition

3.2.2.1.1. Test method: ASTM F 1387-99, Annex 4

3.2.2.1.2. Test medium: water

3.2.2.1.3. Test pressure

3.2.2.1.3.1. Initial pressure: 0.69 Mpa

3.2.2.1.3.2. Increased pressure: 150% of maximu working pressure

3.2.2.1.4. Test sample: each one sample of Spool S-A, S-B and S-C

3.2.2.2. Results

3.2.2.2.1. Spool S-A

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 53.0 MPa during 5 min.	No leakage	No	-	-

3.2.2.2.2. Spool S-B

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 44.0 MPa during 5 min.	No leakage	No	-	-

3.2.2.2.3. Spool S-C

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 44.0 MPa during 5 min.	No leakage	No	-	-

3.2.2.3. Conclusion

The samples of Spool S-A, S-B and S-C passed the test.

3.2.3. Hydrostatic burst test

3.2.3.1. Test condition

3.2.3.1.1. Test method: ASTM F 1387-99, Annex 8

3.2.3.1.2. Test medium: water

3.2.3.1.3. Test pressure

3.2.3.1.3.1. Burst pressure: more than 4 times of maximu working pressure

3.2.3.1.4. Test sample: each one sample of Spool S-A, S-B and S-C

3.2.3.2. Results

3.2.3.2.1. Spool S-A

		Samples		
Condition	Requirement	1	-	-
Test pressure 141 MPa during 1 min.	No leakage	No	-	-
	No burst	No	-	-

3.2.3.2.2. Spool S-B

		Samples		
Condition	Requirement	1	-	-
Test pressure 116 MPa during 1 min.	No leakage	No	-	-
	No burst	No	-	-

3.2.3.2.3. Spool S-C

		Samples		
Condition	Requirement	1	-	-
Test pressure 116 MPa during 1 min.	No leakage	No	-	-
	No burst	No	-	-

3.2.3.3. Conclusion

The samples of Spool S-A, S-B and S-C passed the test.

3.2.4. Helium leak test

3.2.4.1. Test condition

3.2.4.1.1. Test method: Test method A of ASTM E 499-95

3.2.4.1.2. Test medium: helium

3.2.4.1.3. Test pressure: maximum working pressure of each spool

3.2.4.1.4. Test sample: each one sample of Spool S-A, S-B and S-C

3.2.4.2. Results

3.2.4.2.1. Spool S-A

	Samples		
Condition	1	-	-
Leak rate at test pressure 35.2 MPa	maximum 3.0×10^{-6} (atm cc/sec)	-	-

3.2.4.2.2. Spool S-B

	Samples		
Condition	1	-	-
Leak rate at test pressure 29.0 MPa	maximum 3.0×10^{-8} (atm cc/sec)	-	-

3.2.4.2.3. Spool S-C

	Samples		
Condition	1	-	-
Leak rate at test pressure 29.0 MPa	maximum 3.0×10^{-8} (atm cc/sec)	-	-

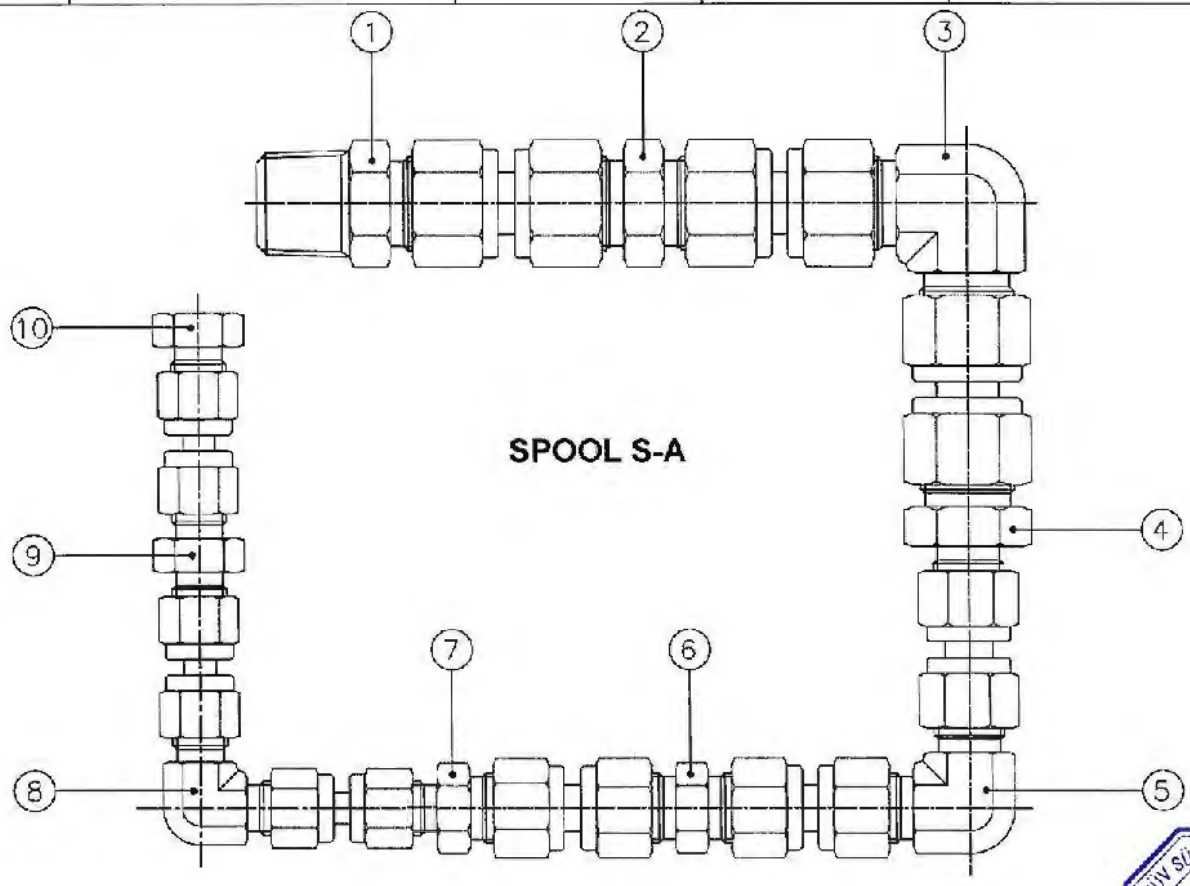
3.2.4.3. Conclusion

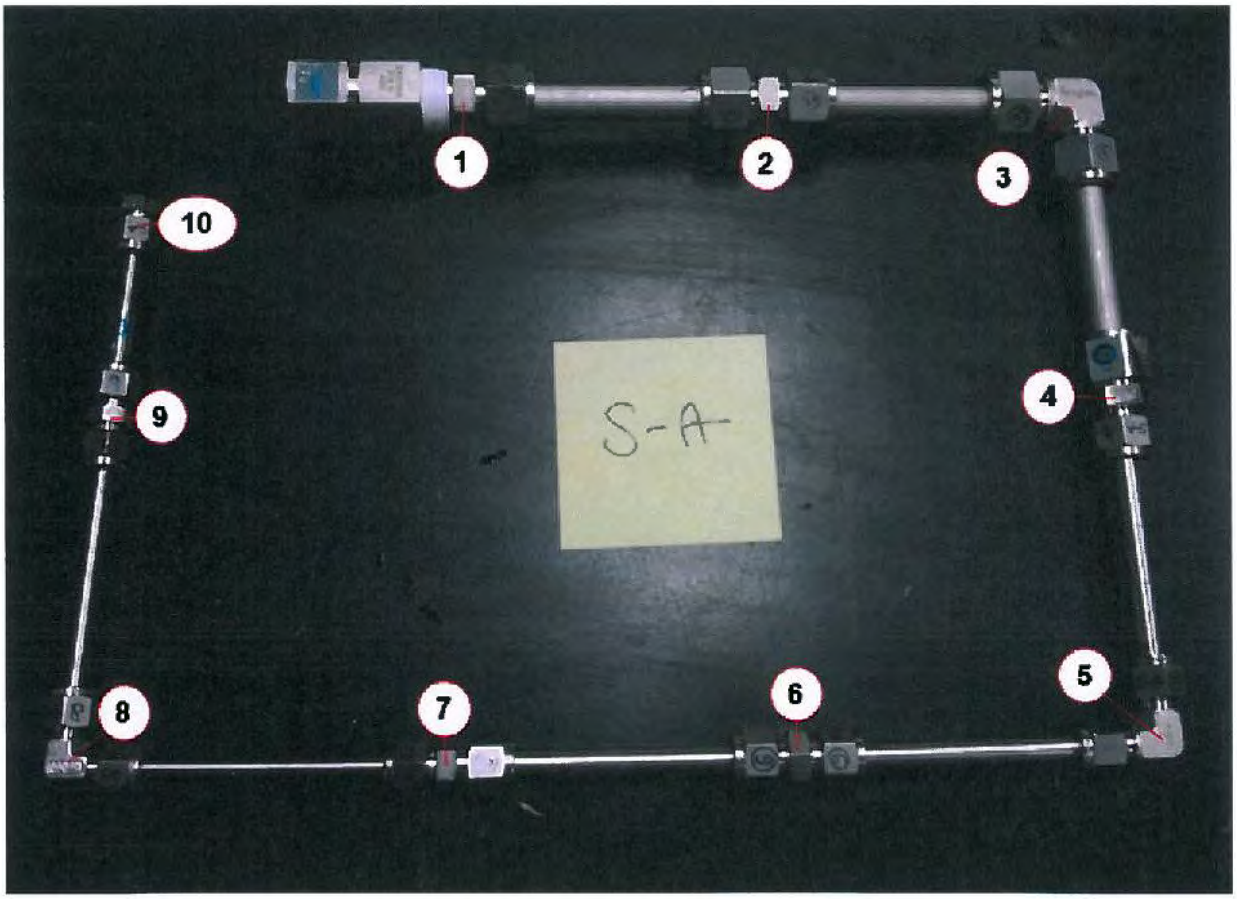
The samples of Spool S-A, S-B and S-C completed the helium leak test with the leak rates less than 3.0×10^{-8} atm cc/sec as referring above results in the section 3.2.4.2.

--

Appendix 1. Combination of Spool S-A

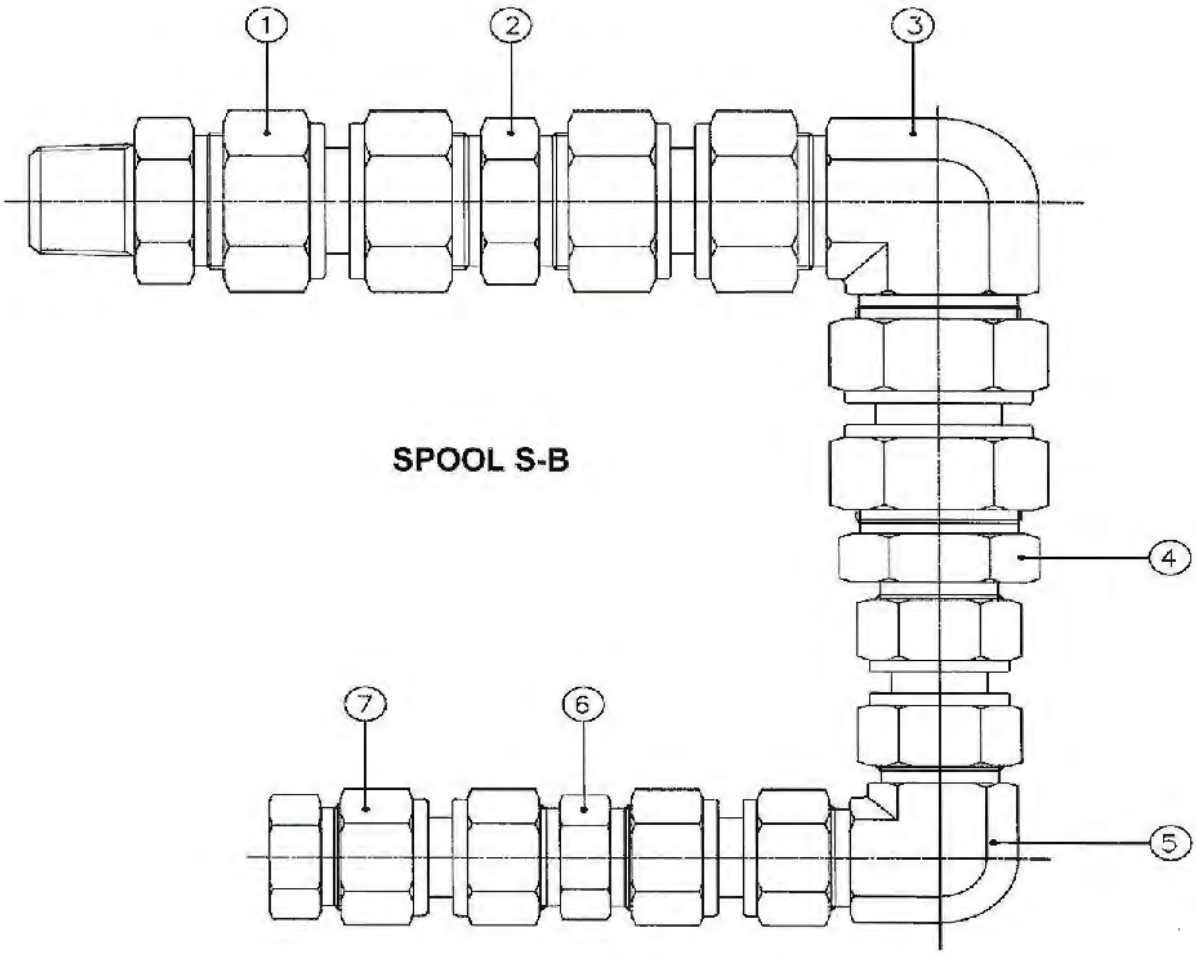
No	Item Name	Nut + Ferrule	Body	S-LOK Part No.
1	Male Connector, O.D 1/2" x M.NPT 1/2"	**S-LOK**	Swagelok	SMC8-8N-S6
2	Union, O.D 1/2"	Swagelok	**S-LOK**	SU-8-S6
3	Union Elbow, O.D 1/2"	**S-LOK**	Swagelok	SL-8-S6
4	Reducing Union, O.D 1/2" x O.D 3/8"	Swagelok	**S-LOK**	SUR8-6-S6
5	Union Elbow, O.D 3/8"	**S-LOK**	Swagelok	SL-6-S6
6	Union, O.D 3/8"	Swagelok	**S-LOK**	SU-6-S6
7	Reducing Union, O.D 3/8" x O.D 1/4"	**S-LOK**	Swagelok	SUR6-4-S6
8	Union Elbow, O.D 1/4"	Swagelok	**S-LOK**	SL-4-S6
9	Union, O.D 1/4"	**S-LOK**	Swagelok	SU-4-S6
10	Cap, O.D 1/4"	Swagelok	**S-LOK**	SC-4-S6



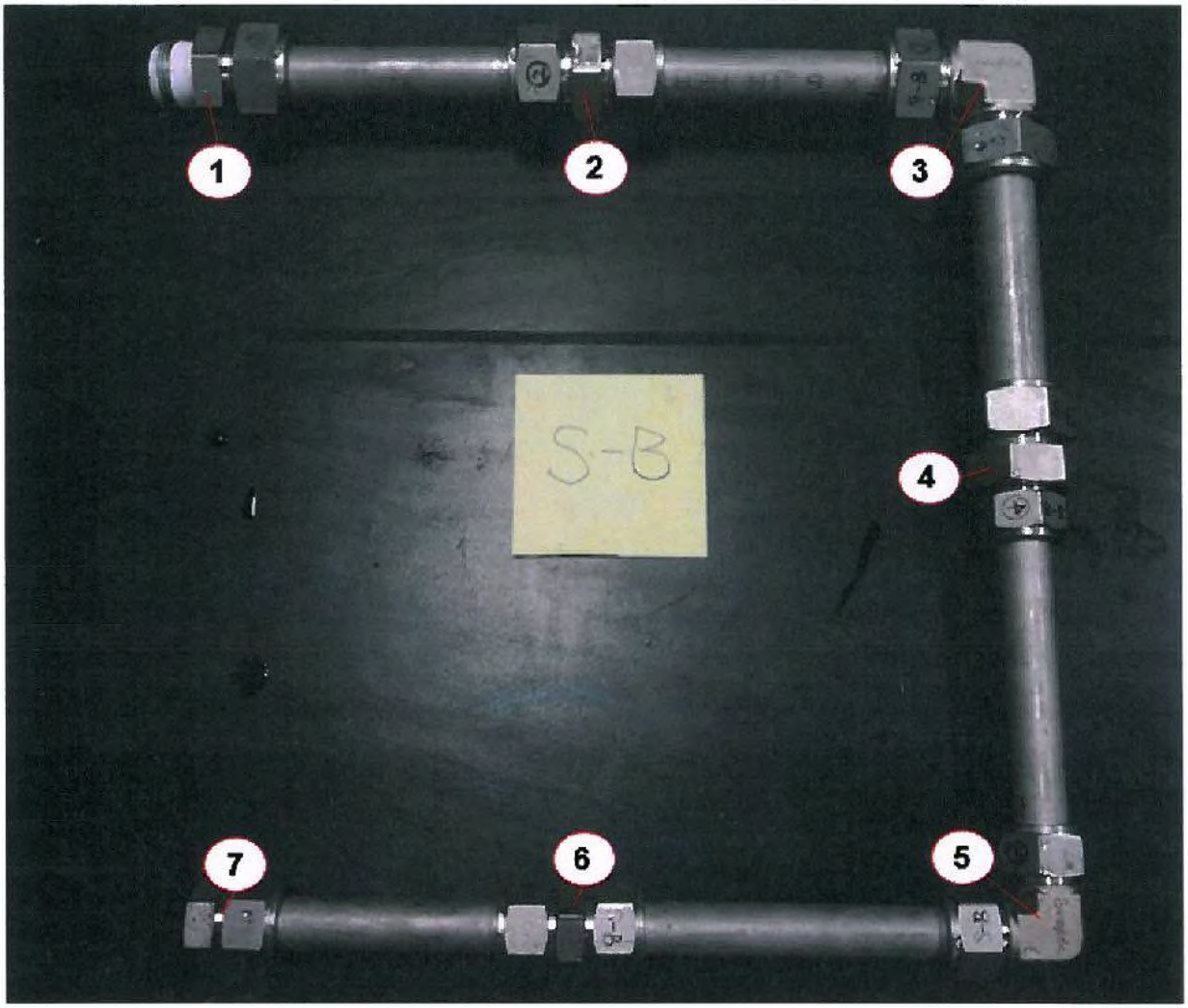

1
2
3
4
5
6
7
8
9
10
S-A

Appendix 2. Combination of Spool S-B

No	Item Name	Nut + Ferrule	Body	S-LOK Part No.
1	Male Connector, O.D 1" x M.NPT 3/4"	Swagelok	**S-LOK**	SMC16-12N-S6
2	Union, O.D 1"	**S-LOK**	Swagelok	SU-16-S6
3	Union Elbow, O.D 1"	Swagelok	**S-LOK**	SL-16-S6
4	Reducing Union, O.D 1" x O.D 3/4"	**S-LOK**	Swagelok	SUR16-12-S6
5	Union Elbow, O.D 3/4"	Swagelok	**S-LOK**	SL-12-S6
6	Union, O.D 3/4"	**S-LOK**	Swagelok	SU-12-S6
7	Cap, O.D 3/4"	Swagelok	**S-LOK**	SC-12-S6

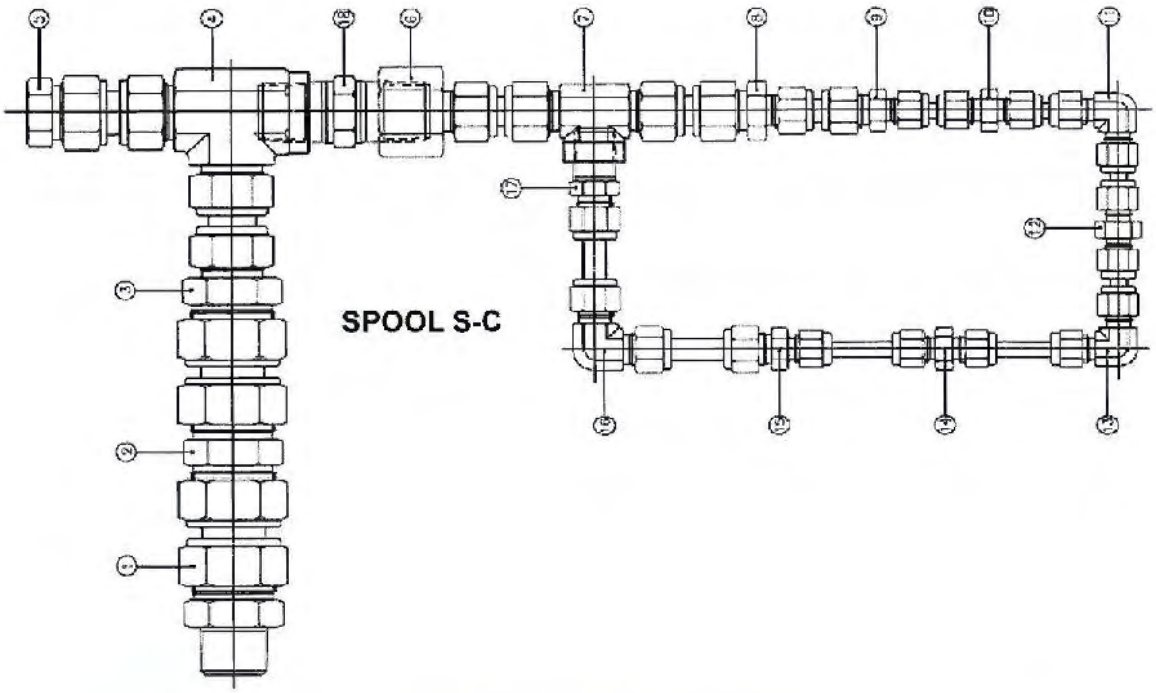


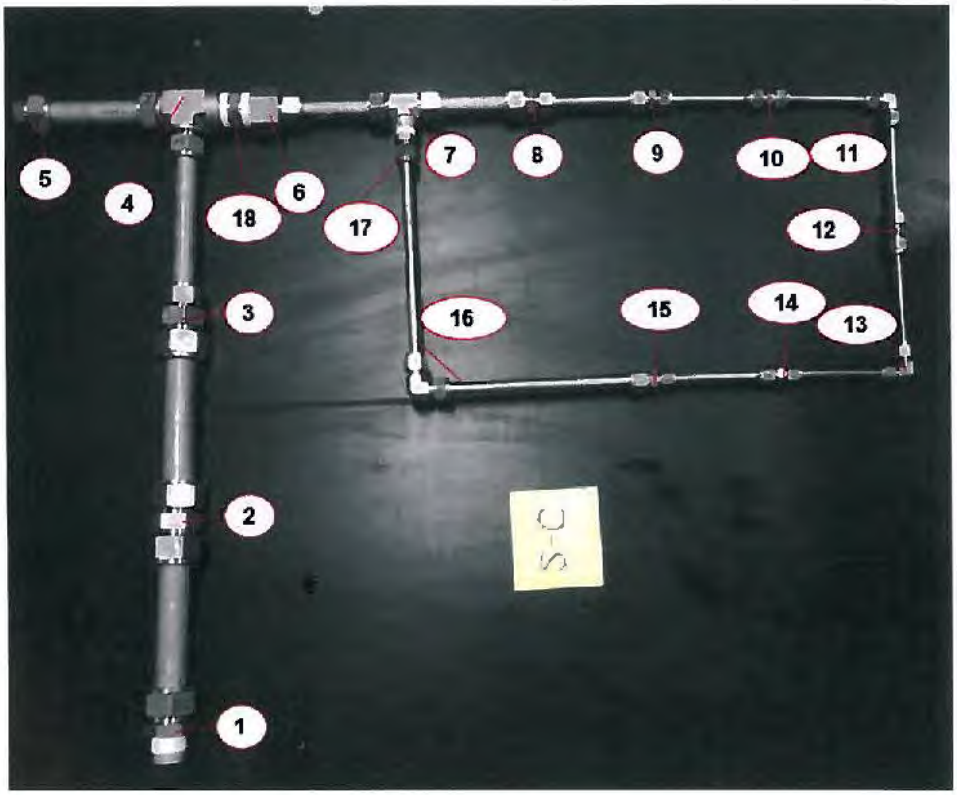
SPOOL S-B


1
2
3
S-B
4
7
6
5

Appendix 3. Combination of Spool S-C

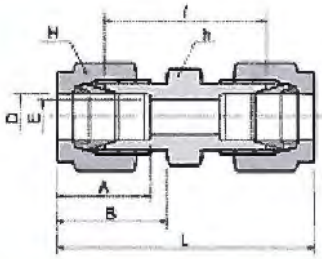
No	Item Name	Nut	Ferrule	Body	S-LOK Part No.
1	Male Connector, O.D 1" x M.NPT 3/4"	Swagelok	**S-LOK**	**S-LOK**	SMC16-12N-S6
2	Union, O.D 1"	**S-LOK**	Swagelok	Swagelok	SU-16-S6
3	Reducing Union, O.D 1" x O.D 3/4"	**S-LOK**	Swagelok	**S-LOK**	SUR16-12-S6
4	Female Run Tee, O.D 3/4" x F.NPT 3/4"	Swagelok	**S-LOK**	Swagelok	STRF12-12N-S6
5	Cap. O.D 3/4"	Swagelok	**S-LOK**	**S-LOK**	SC-12-S6
6	Female Connector, O.D1/2" x F.NPT3/4"	**S-LOK**	Swagelok	Swagelok	SCF8-12N-S6
7	Female Branch Tee, O.D1/2" x F.NPT 3/8"	**S-LOK**	Swagelok	**S-LOK**	STBF8-6N-S6
8	Reducing Union, O.D 1/2" x O.D 3/8"	Swagelok	**S-LOK**	Swagelok	SUR8-6-S6
9	Reducing Union, O.D 3/8" x O.D 1/4"	Swagelok	**S-LOK**	**S-LOK**	SUR6-4-S6
10	Union, O.D 1/4"	**S-LOK**	Swagelok	Swagelok	SU-4-S6
11	Union Elbow, O.D 1/4"	**S-LOK**	Swagelok	**S-LOK**	SL-4-S6
12	Union, O.D 1/4"	Swagelok	**S-LOK**	Swagelok	SU-4-S6
13	Union Elbow, O.D 1/4"	Swagelok	**S-LOK**	**S-LOK**	SL-4-S6
14	Union, O.D 1/4"	**S-LOK**	Swagelok	Swagelok	SU-4-S6
15	Reducing Union, O.D 3/8" x O.D 1/4"	**S-LOK**	Swagelok	**S-LOK**	SUR6-4-S6
16	Union Elbow, O.D 3/8"	Swagelok	**S-LOK**	Swagelok	SL-6-S6
17	Male Connector, O.D 3/8" x M.NPT 3/8"	**S-LOK**	Swagelok	**S-LOK**	SMC6-6N-S6
18	Hex Nipple, M.NPT 3/4"	N/A			P-SHN-12N-S6





Appendix 4. Detail information of S-LOK tube fittings - SU, Union

Union SU



Connects fractional tube

Part No.	Tube O.D. D		E	Width across flat h		H		A	B	l	L
	in	mm	Min.	in	mm	in	mm				
SU-1	1/16	1.59	1.27	5/16	7.93	5/16	7.93	8.63	10.92	17.50	25.15
SU-2	1/8	3.17	2.28	7/16	11.11	7/16	11.11	12.70	15.24	22.35	35.56
SU-3	3/16	4.76	3.04	7/16	11.11	1/2	12.70	13.71	16.00	24.13	37.33
SU-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	26.16	40.89
SU-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	28.19	42.92
SU-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	30.22	44.95
SU-8	1/2	12.70	10.41	13/16	20.04	7/8	22.22	22.86	21.84	30.98	51.30
SU-10	5/8	15.87	12.70	15/16	23.81	1	25.40	24.38	21.84	31.75	52.07
SU-12	3/4	19.05	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	33.27	53.59
SU-14	7/8	22.22	18.28	1-3/16	30.16	1-1/4	31.75	25.90	21.84	35.05	55.37
SU-16	1	25.40	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	40.38	64.77
SU-20	1-1/4	31.75	27.68	1-3/4	44.45	1-7/8	47.63	41.14	38.86	48.00	92.20
SU-24	1-1/2	38.10	34.03	2-1/8	53.97	2-1/4	57.15	60.03	45.21	53.60	107.95
SU-32	2	50.80	45.97	2-3/4	69.85	3	76.20	67.56	62.73	74.70	149.35

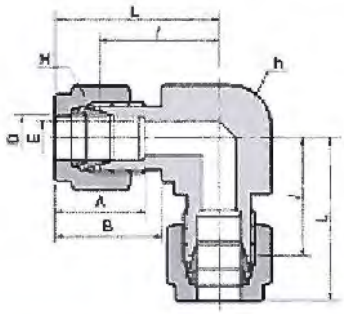
Connects metric tube

Part No.	Tube O.D. D	E Min.	Width across flat h	H	A	B	l	L
SU-2M	2	1.7	12	12	12.9	15.3	22.4	35.6
SU-3M	3	2.4	12	12	12.9	15.3	22.1	35.3
SU-4M	4	2.4	12	12	13.7	16.1	24.1	37.3
SU-6M	6	4.8	14	14	15.3	17.7	26.2	41.0
SU-8M	8	6.4	15	16	16.2	18.6	28.2	43.2
SU-10M	10	7.9	18	19	17.2	19.5	31.0	46.2
SU-12M	12	9.5	22	22	22.8	22.0	31.0	51.2
SU-15M	15	11.9	24	25	24.4	22.0	31.6	52.0
SU-16M	16	12.7	24	25	24.4	22.0	31.6	52.0
SU-18M	18	15.1	27	30	24.4	22.0	33.3	53.5
SU-20M	20	15.9	30	32	26.0	22.0	34.8	55.0
SU-22M	22	18.3	30	32	26.0	22.0	34.8	55.0
SU-25M	25	21.8	35	38	31.3	26.5	40.4	66.0
SU-28M	28	21.8	41	46	36.6	36.6	43.4	85.0
SU-32M	32	26.6	46	50	42.0	41.6	51.3	97.3
SU-38M	38	33.7	55	60	49.4	47.9	58.4	113.6

Korea

Appendix 5. Detail information of S-LOK tube fittings - SU, Union Elbow

Union Elbow
SL



Connects fractional tube

Part No.	Tube O.D. D		E Min.	Width across flat h		H		A	B	l	L
	in	mm		in	mm	in	mm				
SL-1	1/16	1.59	1.27	3/8	9.52	5/16	7.93	8.63	10.92	14.00	17.88
SL-2	1/8	3.17	2.28	3/8	9.52	7/16	11.11	12.70	15.24	16.74	22.35
SL-3	3/16	4.76	3.04	1/2	12.70	1/2	12.70	13.71	16.00	17.78	24.38
SL-4	1/4	6.35	4.62	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92
SL-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70
SL-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48
SL-8	1/2	12.70	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	35.06
SL-10	5/8	15.87	12.70	15/16	23.81	1	25.40	24.38	21.84	28.70	38.80
SL-12	3/4	19.05	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	29.71	39.87
SL-14	7/8	22.22	18.28	1-1/4	31.75	1-1/4	31.75	25.90	21.84	34.54	44.70
SL-16	1	25.40	22.35	1-3/8	34.9	1-1/2	38.10	31.24	26.41	38.83	49.02
SL-20	1-1/4	31.75	27.68	1-11/16	42.86	1-7/8	47.63	41.14	38.86	44.50	66.54
SL-24	1-1/2	38.10	34.03	2	50.80	2-1/4	57.15	50.03	45.21	50.80	77.97
SL-32	2	50.80	45.97	2-3/4	69.85	3	76.20	67.56	62.73	69.80	107.16

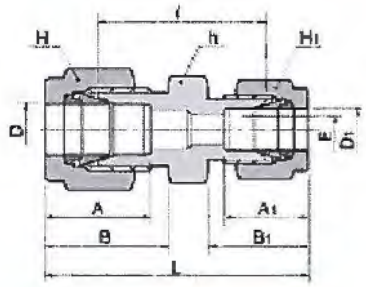
Connects metric tube

Part No.	Tube O.D. D	E Min.	Width across flat h	H	A	B	l	L
SL-2M	2	1.7	9.5	12	12.9	15.3	15.7	22.3
SL-3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
SL-4M	4	2.4	12.7	12	13.7	16.4	18.8	25.4
SL-6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
SL-8M	8	6.4	14.3	16	16.2	18.6	21.3	28.8
SL-10M	10	7.9	17.5	19	17.2	19.5	23.9	31.5
SL-12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
SL-15M	15	11.9	25.4	25	24.4	22.0	28.7	36.8
SL-16M	16	12.7	25.4	25	24.4	22.0	28.7	36.8
SL-18M	18	15.1	27.0	30	24.4	22.0	29.7	39.8
SL-20M	20	15.9	31.8	32	26.0	22.0	34.5	42.6
SL-22M	22	18.3	31.8	32	26.0	22.0	34.5	42.6
SL-25M	25	21.8	34.9	36	31.3	26.5	36.8	49.1
SL-28M	28	21.8	41.0	46	36.6	36.6	43.2	64.0
SL-32M	32	28.6	46.0	50	42.0	41.6	49.3	72.3
SL-38M	38	33.7	56.0	60	49.4	47.9	58.4	84.0

TÜV SÜD KOREA LTD.

Appendix 6. Detail information of S-LOK tube fittings - SUR, Reducing Union

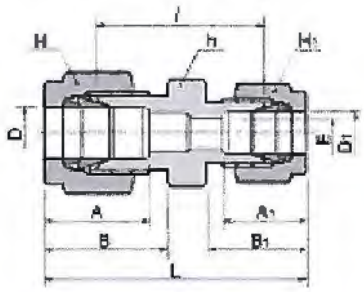
Reducing Union
SUR



Connects fractional tube

Part No.	Tube O.D. D		Tube O.D. D1		E	Width across flat h		Width across flat H		Width across flat H1		A	A1	B	B1	l	L
	in	mm	in	mm	Min.	in	mm	in	mm	in	mm						
SUR-2-1	1/8	3.18	1/16	1.59	1.27	7/16	11.11	7/16	11.11	5/16	7.93	12.70	8.63	15.24	10.92	20.60	30.91
SUR-3-1	3/16	4.76	1/16	1.59	1.27	7/16	11.11	1/2	12.70	5/16	7.93	13.71	8.63	16.00	10.92	21.84	32.25
SUR-3-2	3/16	4.76	1/8	3.17	2.28	7/16	11.11	1/2	12.70	7/16	11.11	13.71	12.70	16.00	15.24	23.36	36.57
SUR-4-1	1/4	6.35	1/16	1.59	1.27	1/2	12.70	9/16	14.28	5/16	7.93	15.24	8.63	17.78	10.92	23.11	34.29
SUR-4-2	1/4	6.35	1/8	3.17	2.28	1/2	12.70	9/16	14.28	7/16	11.11	15.24	12.70	17.78	15.24	24.63	38.60
SUR-4-3	1/4	6.35	3/16	4.76	3.04	1/2	12.70	9/16	14.28	1/2	12.70	16.24	13.71	17.78	16.00	25.40	39.37
SUR-5-2	5/16	7.93	1/8	3.17	2.28	9/16	14.28	5/8	15.87	7/16	11.11	16.25	12.70	18.54	15.24	25.90	39.87
SUR-5-4	5/16	7.93	1/4	6.35	4.82	9/16	14.28	5/8	15.87	9/16	14.28	16.25	15.24	18.54	17.78	27.43	42.16
SUR-6-1	3/8	9.52	1/16	1.59	1.27	5/8	15.87	11/16	17.46	5/16	7.93	16.76	8.63	19.30	10.92	25.40	36.57
SUR-6-2	3/8	9.52	1/8	3.17	2.28	5/8	15.87	11/16	17.46	7/16	11.11	16.76	12.70	19.30	15.24	26.92	40.89
SUR-6-4	3/8	9.52	1/4	6.35	4.82	5/8	15.87	11/16	17.46	9/16	14.28	16.76	15.24	19.30	17.78	28.44	43.18
SUR-6-5	3/8	9.52	5/16	7.93	6.35	5/8	15.87	11/16	17.46	5/8	15.87	16.76	16.25	19.30	18.54	29.46	44.19
SUR-8-2	1/2	12.70	1/8	3.17	2.28	13/16	20.64	7/8	22.22	7/16	11.11	22.86	12.70	21.84	15.24	28.44	45.21
SUR-8-4	1/2	12.70	1/4	6.35	4.82	13/16	20.64	7/8	22.22	9/16	14.28	22.86	15.24	21.84	17.78	29.46	46.99
SUR-8-6	1/2	12.70	3/8	9.52	7.11	13/16	20.64	7/8	22.22	11/16	17.46	22.86	16.76	21.84	19.30	30.96	48.51
SUR-10-6	5/8	15.87	3/8	9.52	7.11	15/16	23.81	1	25.40	11/16	17.46	24.38	16.76	21.84	19.30	31.75	49.27
SUR-10-8	5/8	15.87	1/2	12.70	10.41	15/16	23.81	1	25.40	7/8	22.22	24.38	22.86	21.84	21.84	31.75	52.07
SUR-12-4	3/4	19.05	1/4	6.35	4.82	1-1/16	26.98	1-1/8	28.57	9/16	14.48	24.38	15.24	21.84	17.78	31.75	49.27
SUR-12-6	3/4	19.05	3/8	9.52	7.11	1-1/16	26.98	1-1/8	28.57	11/16	17.46	24.38	16.76	21.84	19.30	33.27	50.80
SUR-12-8	3/4	19.05	1/2	12.70	10.41	1-1/16	26.98	1-1/8	28.57	7/8	22.22	24.38	22.86	21.84	21.84	33.27	53.59
SUR-12-10	3/4	19.05	5/8	15.87	12.70	1-1/16	26.98	1-1/8	28.57	1	25.40	24.38	24.38	21.84	21.84	33.27	53.59
SUR-16-8	1	25.40	1/2	12.70	10.41	1-3/8	34.92	1-1/2	38.10	7/8	22.22	31.24	22.86	26.41	21.84	40.89	63.24
SUR-16-12	1	25.40	3/4	19.05	15.74	1-3/8	34.92	1-1/2	38.10	1-1/8	28.58	31.24	24.38	26.41	21.84	40.38	62.73

Reducing Union
SUR



Connects metric tube

Part No	Tube O.D.		E	Width across flat			A	A1	B	B1	l	L
	D	D1	Min.	h	H	H1						
SUR-3M-2M	3	2	1.7	12	12	12	12.9	12.9	15.3	15.3	22.1	35.3
SUR-6M-2M	6	2	1.7	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
SUR-6M-3M	6	3	2.4	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
SUR-6M-4M	6	4	2.4	14	14	12	15.3	13.7	17.7	16.1	25.4	39.4
SUR-8M-6M	8	6	4.8	15	16	14	16.2	15.3	18.6	17.7	27.4	42.3
SUR-10M-8M	10	8	4.8	18	19	14	17.2	15.3	19.5	17.7	29.5	44.5
SUR-10M-8M	10	8	6.4	18	19	16	17.2	16.2	19.5	18.6	30.0	45.1
SUR-12M-8M	12	6	4.8	22	22	14	22.8	15.3	22.0	17.7	29.5	47.0
SUR-12M-8M	12	8	6.4	22	22	16	22.8	16.2	22.0	18.6	30.2	47.8
SUR-12M-10M	12	10	7.9	22	22	19	22.8	17.2	22.0	19.5	31.0	48.7
SUR-16M-10M	16	10	7.9	24	25	19	24.4	17.2	22.0	19.5	31.8	49.5
SUR-16M-12M	16	12	9.5	24	25	22	24.4	22.8	22.0	22.0	31.8	52.0
SUR-18M-12M	18	12	9.5	27	30	22	24.4	22.8	22.0	22.0	33.3	53.5
SUR-25M-18M	25	18	15.1	35	38	30	31.3	24.4	26.5	22.0	38.6	61.0
SUR-25M-20M	25	20	15.9	35	38	32	31.3	26.0	26.5	22.0	39.9	62.3

Connects metric tube to fractional tube

Part No.	Tube O.D.			E	Width across flat			A	A1	B	B1	l	L
	D	D1		Min.	h	H	H1						
		in	mm										
SUR-3M-2	3	1/8	3.17	2.4	12	12	11.1	12.9	12.8	15.3	15.2	22.1	35.2
SUR-4M-2	4	1/8	3.17	2.4	12	12	11.1	13.7	12.8	16.1	15.2	23.4	36.5
SUR-4M-4	4	1/4	6.35	2.4	14	12	14.3	13.7	16.3	16.1	17.7	25.4	39.4
SUR-6M-2	6	1/8	3.17	2.4	14	14	11.1	15.3	12.8	17.7	15.2	24.6	38.5
SUR-6M-4	6	1/4	6.35	4.8	14	14	14.3	15.3	15.8	17.7	17.7	26.2	41.0
SUR-6M-5	6	5/16	7.93	4.8	14	14	15.9	15.3	16.2	17.7	18.6	27.4	42.3
SUR-8M-4	8	1/4	6.35	4.8	15	16	14.3	16.2	15.3	18.6	17.7	27.4	42.3
SUR-10M-2	10	1/8	3.17	2.4	18	19	11.1	17.2	12.8	19.5	15.2	27.7	41.8
SUR-10M-4	10	1/4	6.35	4.8	18	19	14.3	17.2	15.3	19.5	17.7	29.5	44.5
SUR-10M-5	10	5/16	7.93	6.4	18	19	15.9	17.2	16.2	19.5	18.6	30.3	45.1
SUR-10M-6	10	3/8	9.52	7.1	18	19	17.5	17.2	16.9	19.5	19.6	31.0	45.9
SUR-12M-5	12	5/16	7.93	6.4	22	22	15.9	22.8	16.2	22.0	18.6	30.2	47.8
SUR-12M-6	12	3/8	9.52	7.1	22	22	17.5	22.8	16.9	22.0	19.2	31.0	48.4
SUR-12M-8	12	1/2	12.70	9.5	22	22	22.2	22.8	22.8	22.0	22.0	31.0	51.2
SUR-15M-8	15	1/2	12.70	10.3	24	25	22.2	24.4	22.8	22.0	22.0	31.8	52.0
SUR-16M-10	16	5/8	15.87	12.7	24	25	25.4	24.4	24.4	22.0	22.0	31.8	52.0
SUR-18M-12	18	3/4	19.05	15.1	27	30	28.6	24.4	24.4	22.0	22.0	33.3	53.5
SUR-20M-12	20	3/4	19.05	15.9	30	32	28.6	26.0	24.4	22.0	22.0	34.8	54.9
SUR-20M-16	20	1	25.40	15.9	34.9	32	38.1	26.0	31.2	22.0	26.4	36.0	60.3
SUR-22M-16	22	1	25.40	18.3	34.9	32	38.1	26.0	31.2	22.0	26.4	36.2	60.3

Appendix 7. Detail information of S-LOK tube fittings – SMC-N, Male Connector

Male Connector
SMC-N

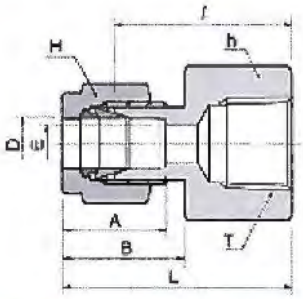
Connects fractional tube to female NPT thread

Part No.	Tube O.D. D		T (NPT)	E Min.	Width across flat h		H		A	B	l	L
	in	mm			in	mm	in	mm				
SMC-1-1N	1/16	1.59	1/16	1.27	5/16	7.93	5/16	7.93	8.63	10.92	20.00	23.63
SMC-1-2N	1/16	1.59	1/8	1.27	7/16	11.11	5/16	7.93	8.63	10.92	22.85	26.23
SMC-1-4N	1/16	1.59	1/4	1.27	9/16	14.28	5/16	7.93	8.63	10.92	27.17	30.98
SMC-2-1N	1/8	3.17	1/16	2.28	7/16	11.11	7/16	11.11	12.70	15.24	23.11	29.71
SMC-2-2N	1/8	3.17	1/8	2.28	7/16	11.11	7/16	11.11	12.70	15.24	23.87	30.48
SMC-2-4N	1/8	3.17	1/4	2.28	9/16	14.28	7/16	11.11	12.70	15.24	28.95	35.56
SMC-2-6N	1/8	3.17	3/8	2.28	11/16	17.46	7/16	11.11	12.70	15.24	29.21	35.81
SMC-2-8N	1/8	3.17	1/2	2.28	7/8	22.22	7/16	11.11	12.70	15.24	35.56	42.16
SMC-3-2N	3/16	4.76	1/8	3.04	7/16	11.11	1/2	12.70	13.71	16.00	24.63	31.24
SMC-3-4N	3/16	4.76	1/4	3.04	9/16	14.28	1/2	12.70	13.71	16.00	29.71	36.32
SMC-4-1N	1/4	6.35	1/16	4.82	1/2	12.70	9/16	14.28	15.24	17.78	25.40	32.76
SMC-4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	25.40	32.76
SMC-4-4N	1/4	6.35	1/4	4.82	9/16	14.28	9/16	14.28	15.24	17.78	30.48	37.84
SMC-4-6N	1/4	6.35	3/8	4.82	11/16	17.46	9/16	14.28	15.24	17.78	30.98	38.35
SMC-4-8N	1/4	6.35	1/2	4.82	7/8	22.22	9/16	14.28	15.24	17.78	37.33	44.70
SMC-4-12N	1/4	6.35	3/4	4.82	1-1/16	26.98	9/16	14.28	15.24	17.78	38.86	46.22
SMC-5-2N	5/16	7.93	1/8	4.82	9/16	14.28	5/8	15.87	16.25	18.54	26.67	34.09
SMC-5-4N	5/16	7.93	1/4	6.35	9/16	14.28	5/8	15.87	16.25	18.54	31.24	38.60
SMC-5-6N	5/16	7.93	3/8	6.35	11/16	17.46	5/8	15.87	16.25	18.54	31.75	39.11
SMC-5-8N	5/16	7.93	1/2	6.35	7/8	22.22	5/8	15.87	16.25	18.54	38.11	45.60
SMC-6-2N	3/8	9.52	1/8	4.82	5/8	15.87	11/16	17.46	16.76	19.30	27.94	35.30
SMC-6-4N	3/8	9.52	1/4	7.11	5/8	15.87	11/16	17.46	16.76	19.30	32.61	39.87
SMC-6-6N	3/8	9.52	3/8	7.11	11/16	17.46	11/16	17.46	16.76	19.30	32.51	39.87
SMC-6-8N	3/8	9.52	1/2	7.11	7/8	22.22	11/16	17.46	16.76	19.30	38.96	46.22
SMC-6-12N	3/8	9.52	3/4	7.11	1-1/16	26.98	11/16	17.46	16.76	19.30	40.35	47.75
SMC-8-2N	1/2	12.70	1/8	4.82	13/16	20.64	7/8	22.22	22.86	21.84	28.70	36.86
SMC-8-4N	1/2	12.70	1/4	7.11	13/16	20.64	7/8	22.22	22.86	21.84	33.27	43.43
SMC-8-6N	1/2	12.70	3/8	9.65	13/16	20.64	7/8	22.22	22.86	21.84	33.27	43.43
SMC-8-8N	1/2	12.70	1/2	10.41	7/8	22.22	7/8	22.22	22.86	21.84	38.86	49.02
SMC-8-12N	1/2	12.70	3/4	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	40.36	50.54
SMC-8-16N	1/2	12.70	1	10.41	1-3/8	34.92	7/8	22.22	22.86	21.84	46.99	57.15
SMC-10-6N	5/8	15.87	3/8	9.65	15/16	23.81	1	25.40	24.38	21.84	34.03	44.19
SMC-10-8N	5/8	15.87	1/2	11.93	15/16	23.81	1	25.40	24.38	21.84	38.86	49.02
SMC-10-12N	5/8	15.87	3/4	12.70	1-1/16	26.98	1	25.40	24.38	21.84	40.36	50.54
SMC-12-8N	3/4	19.05	1/2	11.93	1-1/16	26.98	1-1/8	28.58	24.38	21.84	40.36	50.54
SMC-12-12N	3/4	19.05	3/4	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	40.36	50.54
SMC-12-16N	3/4	19.05	1	15.74	1-3/8	34.92	1-1/8	28.58	24.38	21.84	46.99	57.15
SMC-14-12N	7/8	22.22	3/4	15.74	1-3/16	30.16	1-1/4	31.75	25.90	21.84	40.86	50.54
SMC-14-16N	7/8	22.22	1	16.26	1-3/8	34.92	1-1/4	31.75	25.90	21.84	46.99	57.15
SMC-16-8N	1	25.40	1/2	11.93	1-3/8	34.92	1-1/2	38.10	31.24	26.41	45.21	57.40
SMC-16-12N	1	25.40	3/4	15.74	1-3/8	34.92	1-1/2	38.10	31.24	26.41	45.21	57.40
SMC-16-16N	1	25.40	1	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	50.03	62.23
SMC-20-16N	1-1/4	31.75	1	22.35	1-3/4	44.45	1-7/8	47.63	41.14	38.86	55.11	77.21
SMC-20-20N	1-1/4	31.75	1-1/4	27.68	1-3/4	44.45	1-7/8	47.63	41.14	38.86	55.11	77.21
SMC-20-24N	1-1/4	31.75	1-1/2	27.68	1-3/4	44.45	1-7/8	47.63	41.14	38.86	60.54	82.64
SMC-24-20N	1-1/2	38.10	1-1/4	27.68	2-1/8	53.98	2-1/4	57.15	50.03	45.21	59.42	86.60
SMC-24-24N	1-1/2	38.10	1-1/2	34.03	2-1/8	53.98	2-1/4	57.15	50.03	45.21	61.72	88.90
SMC-24-32N	1-1/2	38.10	2	34.03	2-3/4	69.85	2-1/4	57.15	50.03	45.21	62.42	99.75
SMC-32-8N	2	50.80	1/2	11.93	2-3/4	69.85	3	76.20	67.56	62.73	69.40	105.73
SMC-32-20N	2	50.80	1-1/4	45.97	2-3/4	69.85	3	76.20	67.56	62.73	71.40	108.73
SMC-32-24N	2	50.80	1-1/2	45.97	2-3/4	69.85	3	76.20	67.56	62.73	75.50	112.93
SMC-32-32N	2	50.80	2	45.97	2-3/4	69.85	3	76.20	67.56	62.73	76.20	112.93

Korea

Appendix 8. Detail information of S-LOK tube fittings – SCF, Female Connector

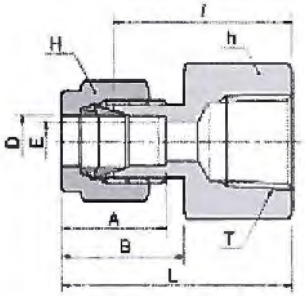
Female Connector SCF

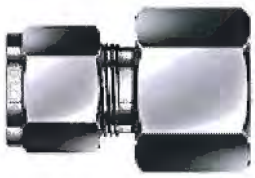


Connects fractional tube to male NPT thread

Part No.	Tube O.D. D		T (NPT)	E Min.	Width across flat h		H		A	B	l	L
	in	mm			in	mm	in	mm				
SCF - 1-1N	1/16	1.59	1/16	1.27	7/16	11.11	5/16	7.93	8.63	10.92	19.61	23.62
SCF - 1-2N	1/16	1.59	1/8	1.27	9/16	14.28	5/16	7.93	8.63	10.92	20.57	24.36
SCF - 2-2N	1/8	3.17	1/8	2.28	9/16	14.28	7/16	11.11	12.70	15.24	22.09	28.70
SCF - 2-4N	1/8	3.17	1/4	2.28	3/4	19.05	7/16	11.11	12.70	15.24	26.92	33.52
SCF - 3-2N	3/16	4.76	1/8	3.04	9/16	14.28	1/2	12.70	13.71	16.00	23.11	29.71
SCF - 4-2N	1/4	6.35	1/8	4.82	9/16	14.28	9/16	14.28	15.24	17.78	23.87	31.24
SCF - 4-4N	1/4	6.35	1/4	4.82	3/4	19.05	9/16	14.28	15.24	17.78	28.44	35.81
SCF - 4-6N	1/4	6.35	3/8	4.82	7/8	22.22	9/16	14.28	15.24	17.78	30.22	37.59
SCF - 4-8N	1/4	6.35	1/2	4.82	1-1/16	26.98	9/16	14.28	15.24	17.78	35.05	42.41
SCF - 5-2N	5/16	7.93	1/8	6.35	9/16	14.28	5/8	15.87	16.25	18.54	24.63	32.00
SCF - 5-4N	5/16	7.93	1/4	6.35	3/4	19.05	5/8	15.87	16.25	18.54	29.46	36.83
SCF - 6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	25.40	32.76
SCF - 6-4N	3/8	9.52	1/4	7.11	3/4	19.05	11/16	17.46	16.76	19.30	30.22	37.59
SCF - 6-6N	3/8	9.52	3/8	7.11	7/8	22.22	11/16	17.46	16.76	19.30	31.75	39.11
SCF - 6-8N	3/8	9.52	1/2	7.11	1-1/16	26.98	11/16	17.46	16.76	19.30	36.57	43.94
SCF - 6-12N	3/8	9.52	3/4	7.11	1-5/16	33.33	11/16	17.46	16.76	19.30	40.38	47.75
SCF - 8-4N	1/2	12.70	1/4	10.41	1-3/16	20.64	7/8	22.22	22.86	21.84	30.22	40.38
SCF - 8-6N	1/2	12.70	3/8	10.41	7/8	22.22	7/8	22.22	22.86	21.84	31.75	41.91
SCF - 8-8N	1/2	12.70	1/2	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	36.57	46.73
SCF - 8-12N	1/2	12.70	3/4	10.41	1-5/16	33.33	7/8	22.22	22.86	21.84	38.10	48.26
SCF - 10-6N	5/8	15.87	3/8	12.70	15/16	23.81	1	25.40	24.38	21.84	31.75	41.91
SCF - 10-8N	5/8	15.87	1/2	12.70	1-1/16	26.98	1	25.40	24.38	21.84	36.57	46.73
SCF - 10-12N	5/8	15.87	3/4	12.70	1-5/16	33.33	1	25.40	24.38	21.84	38.10	48.26
SCF - 12-8N	3/4	19.05	1/2	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	36.57	46.73
SCF - 12-12N	3/4	19.05	3/4	15.74	1-5/16	33.33	1-1/8	28.58	24.38	21.84	38.10	48.26
SCF - 14-12N	7/8	22.22	3/4	18.28	1-5/16	33.33	1-1/4	31.75	25.90	21.84	39.62	49.78
SCF - 16-12N	1	25.40	3/4	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	41.14	53.34
SCF - 16-16N	1	25.40	1	22.35	1-5/8	41.27	1-1/2	38.10	31.24	26.41	50.03	62.23
SCF - 20-20N	1-1/4	31.75	1-1/4	27.68	2-1/8	53.98	1-7/8	47.63	41.14	38.86	52.57	74.87
SCF - 24-24N	1-1/2	38.10	1-1/2	34.03	2-3/8	60.33	2-1/4	57.15	50.03	45.21	56.13	83.31
SCF - 32-32N	2	50.80	2	45.97	2-1/8	73.03	3	76.20	67.56	62.73	64.26	101.60

Female Connector SCF



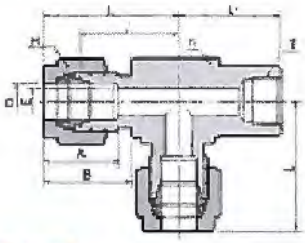


Connects metric tube to male ISO tapered thread

Part No.	Tube O.D. D	T R(PT)	E Min.	Width across flat h	Width across flat H	A	B	l	L
SCF-3M-2R	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
SCF-3M-4R	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
SCF-4M-2R	4	1/8	2.4	14	12	13.7	16.1	23.1	29.7
SCF-6M-2R	6	1/8	4.8	14	14	15.3	17.7	23.9	31.3
SCF-6M-4R	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
SCF-6M-6R	6	3/8	4.8	22	14	15.3	17.7	29.5	36.9
SCF-6M-8R	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
SCF-8M-2R	8	1/8	6.4	15	16	16.2	18.6	24.6	32.1
SCF-8M-4R	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
SCF-8M-6R	8	3/8	6.4	22	16	16.2	18.6	30.2	37.7
SCF-8M-8R	8	1/2	6.4	27	16	16.2	18.6	35.6	43.3
SCF-10M-2R	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
SCF-10M-4R	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
SCF-10M-6R	10	3/8	7.9	22	19	17.2	19.5	31.0	38.6
SCF-10M-8R	10	1/2	7.9	27	19	17.2	19.5	36.6	44.2
SCF-12M-2R	12	1/8	9.3	22	22	22.8	22.0	28.4	38.5
SCF-12M-4R	12	1/4	9.5	22	22	22.8	22.0	30.2	4.03
SCF-12M-6R	12	3/8	9.5	22	22	22.8	22.0	31.0	41.1
SCF-12M-8R	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
SCF-12M-12R	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
SCF-15M-8R	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
SCF-16M-8R	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
SCF-20M-8R	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
SCF-20M-12R	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
SCF-22M-12R	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
SCF-22M-16R	22	1	18.3	41	32	26.0	22.0	47.8	57.9
SCF-25M-12R	25	3/4	21.8	35	36	31.3	26.5	41.1	53.4
SCF-25M-16R	25	1	21.8	41	36	31.3	26.5	50.0	62.3

Appendix 9. Detail information of S-LOK tube fittings – STRF, Female Run Tee

Female Run Tee
STRF



Connects fractional tube to male NPT thread

Part No.	Tube O.D D		T	E	Width across flat h		H		A	B	J	L	L1
	in	mm	(NPT)	Min.	in	mm	in	mm					
STRF-2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.03	24.63	19.05
STRF-2-4N	1/8	3.17	1/4	2.28	11/16	17.46	7/16	11.11	12.70	15.24	20.82	27.43	22.35
STRF-3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	19.05
STRF-4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
STRF-4-4N	1/4	6.35	1/4	4.82	11/16	17.46	9/16	14.28	15.24	17.78	22.80	29.71	22.35
STRF-4-6N	1/4	6.35	3/8	4.82	13/16	20.64	9/16	14.28	15.24	17.78	24.38	31.75	22.35
STRF-4-8N	1/4	6.35	1/2	4.82	1	25.40	9/16	14.28	15.24	17.78	27.17	34.54	28.44
STRF-5-2N	5/16	7.94	1/8	6.35	9/16	14.28	5/8	15.87	16.25	16.54	21.33	28.70	19.05
STRF-5-4N	5/16	7.94	1/4	6.35	11/16	17.46	5/8	15.87	16.25	16.54	23.11	30.48	22.35
STRF-6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48	19.05
STRF-6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
STRF-6-6N	3/8	9.52	3/8	6.35	13/16	20.64	11/16	17.46	16.76	19.30	25.90	33.27	22.35
STRF-6-8N	3/8	9.52	1/2	7.11	1	25.40	11/16	17.46	16.76	19.30	28.70	36.06	28.44
STRF-8-4N	1/2	12.70	1/4	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STRF-8-6N	1/2	12.70	3/8	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STRF-8-8N	1/2	12.70	1/2	10.41	1	25.40	7/8	22.22	22.86	21.84	29.71	39.87	28.44
STRF-10-6N	5/8	15.87	3/8	12.70	15/16	23.81	1	25.40	24.38	21.84	27.94	38.10	22.35
STRF-10-8N	5/8	15.87	1/2	12.70	1	25.40	1	25.40	24.38	21.84	28.70	38.86	28.44
STRF-12-8N	3/4	19.05	1/2	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	29.71	39.87	28.44
STRF-12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.58	24.38	21.84	34.54	44.70	31.75
STRF-14-12N	7/8	22.22	3/4	18.28	1-1/4	31.75	1-1/4	31.75	31.75	21.84	34.54	44.70	31.75
STRF-16-12N	1	25.40	3/4	22.35	1-27/64	36.12	1-1/2	38.10	38.10	26.41	36.83	49.02	31.75
STRF-16-16N	1	25.40	1	22.35	1-1/16	42.86	1-1/2	38.10	38.10	26.41	41.40	50.29	38.10

Connects metric tube to male NPT thread

Part No.	Tube O.D D	T	E	Width across flat h	H	A	B	J	L	L1
		(NPT)	Min.							
STRF-6M-2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.00
STRF-6M-4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
STRF-6M-6N	6	3/8	4.8	20.64	14	15.3	17.7	24.4	31.7	22.40
STRF-6M-8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.40
STRF-8M-2N	8	1/8	6.4	15.87	16	16.2	18.6	23.1	29.9	19.00
STRF-8M-4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
STRF-8M-6N	8	3/8	6.4	20.64	16	16.2	18.6	25.2	32.4	22.40
STRF-8M-8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.40
STRF-10M-2N	10	1/8	7.9	20.64	19	17.2	19.5	23.9	31.5	19.00
STRF-10M-4N	10	1/4	7.9	20.64	19	17.2	19.5	25.9	33.6	22.40
STRF-10M-6N	10	3/8	7.9	20.64	19	17.2	19.5	25.9	33.6	22.40
STRF-10M-8N	10	1/2	7.9	25.40	19	17.2	19.5	26.2	33.6	28.40
STRF-12M-4N	12	1/4	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STRF-12M-6N	12	3/8	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STRF-12M-8N	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.40
STRF-16M-8N	16	1/2	12.7	25.40	25	24.4	22.0	29.7	40.0	28.40

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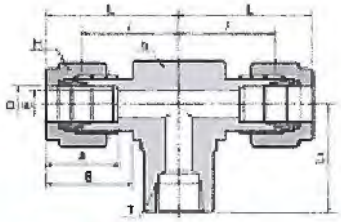
Appendix 10. Detail information of S-LOK tube fittings – STBF, Female Branch Tee

Female Branch Tee
STBF



Connects fractional tube to male NPT thread

Part No.	Tube O.D. D		T	E	Width across flat h		H		A	B	I	L	L1
	in	mm	(NPT)	Min.	in	mm	in	mm					
STBF-2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.03	24.38	19.05
STBF-2-4N	1/8	3.17	1/4	2.28	11/16	17.46	7/16	11.11	12.70	15.24	20.82	27.43	22.35
STBF-3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	19.05
STBF-4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
STBF-4-4N	1/4	6.35	1/4	4.82	11/16	17.46	9/16	14.28	15.24	17.78	22.35	29.71	22.35
STBF-4-6N	1/4	6.35	3/8	4.82	13/16	20.64	9/16	14.28	15.24	17.78	24.38	31.75	22.35
STBF-4-8N	1/4	6.35	1/2	4.82	1	25.40	9/16	14.28	15.24	17.78	27.17	34.54	28.44
STBF-5-2N	5/16	7.94	1/8	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70	19.05
STBF-5-4N	5/16	7.94	1/4	6.35	11/16	17.46	5/8	15.87	16.25	18.54	23.11	30.48	22.35
STBF-6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48	19.05
STBF-6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
STBF-6-6N	3/8	9.52	3/8	6.35	13/16	20.64	11/16	17.46	16.76	19.30	25.90	33.27	22.35
STBF-6-8N	3/8	9.52	1/2	7.11	1	25.40	11/16	17.46	16.76	19.30	28.70	36.06	28.44
STBF-8-4N	1/2	12.70	1/4	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STBF-8-6N	1/2	12.70	3/8	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STBF-8-8N	1/2	12.70	1/2	10.41	1	25.40	7/8	22.22	22.86	21.84	29.71	39.87	28.44
STBF-10-6N	5/8	15.87	3/8	12.70	15/16	23.81	1	25.40	24.38	21.84	27.94	38.10	22.35
STBF-10-8N	5/8	15.87	1/2	12.70	1	25.40	1	25.40	24.38	21.84	28.70	38.86	28.44
STBF-12-8N	3/4	19.05	1/2	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	29.71	39.87	28.44
STBF-12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.58	24.38	21.84	34.54	44.70	31.75
STBF-14-12N	7/8	22.22	3/4	18.28	1-1/4	31.75	1-1/4	31.75	25.90	21.84	34.54	44.70	31.75
STBF-16-12N	1	25.40	3/4	22.35	1-27/64	36.00	1-1/2	38.10	31.24	26.41	36.83	49.02	31.75
STBF-16-16N	1	25.40	1	22.35	1-11/16	42.86	1-1/2	38.10	31.24	26.41	41.40	53.59	38.10

Connects metric tube to male NPT thread

Part No.	Tube O.D. D	T (NTP)	E Min.	Width across flat h	H	A	B	I	L	L1
STBF-6M-2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.00
STBF-6M-4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
STBF-6M-6N	6	3/8	4.8	20.64	14	15.3	17.7	24.4	31.7	22.40
STBF-6M-8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.40
STBF-8M-2N	8	1/8	6.4	15.87	16	16.2	18.6	23.1	29.9	19.00
STBF-8M-4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
STBF-8M-6N	8	3/8	6.4	20.64	16	16.2	18.6	25.2	32.4	22.40
STBF-8M-8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.40
STBF-10M-2N	10	1/8	7.9	17.50	19	17.2	19.5	23.9	31.5	19.00
STBF-10M-4N	10	1/4	7.9	20.64	19	17.2	19.5	25.9	33.5	22.40
STBF-10M-6N	10	3/8	7.9	20.64	19	17.2	19.5	25.9	33.5	22.40
STBF-10M-8N	10	1/2	9.5	25.40	19	17.2	19.5	26.2	33.6	22.40
STBF-12M-4N	12	1/4	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STBF-12M-6N	12	3/8	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STBF-12M-8N	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.40
STBF-16M-8N	16	1/2	12.7	25.40	25	24.4	22.0	29.7	40.0	28.70

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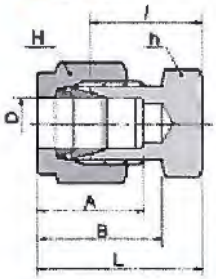
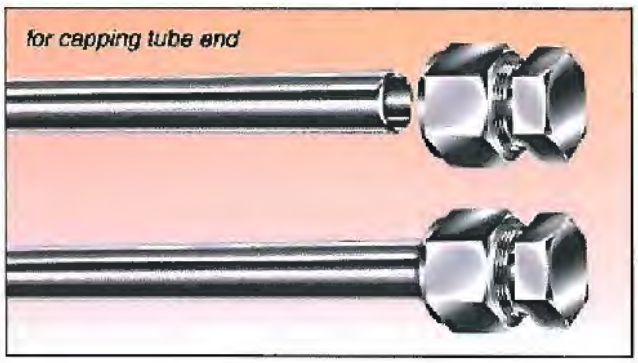
Appendix 11. Detail information of S-LOK tube fittings – SC, Cap

Cap SC



Installation Instructions

1. Insert the tube end into the Cap
2. With a wrench, 1-1/4 turns from the finger-tight position, (3/4 turn for 1/8", 3/16" 3mm and 4mm)



Cap end of fractional tube

Part No.	Tube O.D. D		Width across flat h		H		A	B	I	L
	in	mm	in	mm	in	mm				
SC-1	1/16	1.59	5/16	7.93	5/16	7.93	6.63	10.92	11.20	14.18
SC-2	1/8	3.17	7/16	11.11	7/16	11.11	12.70	15.24	13.46	20.06
SC-3	3/16	4.76	7/16	11.11	1/2	12.70	13.71	16.00	14.73	21.33
SC-4	1/4	6.35	1/2	12.70	9/16	14.28	15.24	17.78	16.00	23.28
SC-5	5/16	7.93	9/16	14.28	5/8	15.87	16.25	18.54	17.01	24.38
SC-6	3/8	9.52	5/8	15.87	11/16	17.46	16.76	19.30	18.28	25.65
SC-8	1/2	12.70	13/16	20.63	7/8	22.22	22.86	21.84	19.05	29.21
SC-10	5/8	15.87	15/16	23.81	1	25.40	24.38	21.84	19.81	29.97
SC-12	3/4	19.05	1-1/16	26.98	1-1/8	28.57	24.38	21.84	21.33	31.49
SC-14	7/8	22.22	1-3/16	30.16	1-1/4	31.75	25.90	21.84	23.87	34.03
SC-16	1	25.40	1-3/8	34.92	1-1/2	38.10	31.24	26.41	26.16	38.35
SC-20	1-1/4	31.75	1-3/4	44.45	1-7/8	47.63	41.14	38.86	31.24	53.34
SC-24	1-1/2	38.10	2-1/8	53.98	2-1/4	57.15	50.15	45.21	37.33	64.51
SC-32	2	50.80	2-3/4	69.85	3	76.20	67.56	62.73	49.27	86.61

Cap end of metric tube

Part No.	Tube O.D. D	Width across flat h	H	A	B	I	L
SC-2M	2	12	12	12.9	15.3	13.5	20.1
SC-3M	3	12	12	12.9	15.3	13.5	20.1
SC-4M	4	12	12	13.7	16.1	14.7	21.3
SC-6M	6	14	14	15.3	17.7	15.7	23.1
SC-8M	8	15	16	16.2	18.6	17.0	24.5
SC-10M	10	18	19	17.2	19.5	19.0	26.6
SC-12M	12	22	22	22.8	22.0	19.0	29.1
SC-15M	15	24	25	24.4	22.0	19.8	29.9
SC-16M	16	24	25	24.4	22.0	19.8	29.9
SC-18M	18	27	30	24.4	22.0	21.3	31.4
SC-20M	20	30	32	26.0	22.0	23.9	34.0
SC-22M	22	30	32	26.0	22.0	23.9	34.0
SC-25M	25	35	38	31.3	26.5	26.2	38.5
SC-28M	28	41	46	36.6	36.6	27.7	48.5
SC-32M	32	46	50	42.0	41.6	32.8	55.8
SC-38M	38	55	60	49.4	47.9	37.8	65.4

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INSPECTION REPORT

Intermix and Interchange Tests

Tube fittings of S-LOK and Hoke Gyrolok –

Pneumatic proof test,
Hydrostatic proof test,
Hydrostatic burst test, and
Helium leak test.

Client name:

HANSUN ENGINEERING CO., LTD.
(Songjeong-dong)27, Noksansandan 361-ro,
Gangseo-gu, Busan, Korea

August 30, 2013
Byung-Ho Bae, Inspector
TÜV SÜD Korea Ltd., Seoul

TÜV SÜD KOREA LTD. TÜV SÜD

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1. General information

Client name	HANSUN ENGINEERING CO., LTD.
Contact person name of the client	Sung, SeeHong HANSUN ENGINEERING CO., LTD. (Songjeong-dong)27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea
Tel.	+82 51-899-6751
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Description of product	S-LOK tube fitting composes of four precision parts, which are body, nut, front ferrule and back ferrule.
S-LOCK	The brand name of HANSUNG ENGINEERING
ITP No.	HSEITP-1307-001 Rev.1
Test date	July 23 ~ 25, 2013 and August 27, 2013
Test site	For pneumatic proof test and helium leak test KGS (Korea Gas Safety Corporation) 11 Soraesan-gil, Daeya-dong, Siheung-Si, Gyeonggi-Do, Korea For hydrostatic proof test and hydrostatic burst test HANSUN ENGINEERING CO., LTD. (Songjeong-dong)27, Noksansandan 361-ro, Gangseo-gu, Busan, Korea

2. Product information

The test object is verification of tightness of tube fittings of two brands, which are S-LOK and Hoke Gyrolok, for interchange and intermix of their ferrules, nuts and bodies.

2.1. Preparation of test spools

2.1.1. Assembly instruction

1) Insert the tubing into the tube fittings until the tubing end bottoms on the shoulder of the fitting body. Make sure the nut finger-tightened
2) Tighten the nut 1-1/4 turn with a wrench by holding the fitting body with a back up wrench

2.2. Definition of intermix and interchange

2.2.1. Intermix: random mixing of components of different brands

2.2.2. Interchange: more specifically defined as the use of one brand nut and ferrule with another brand body

2.3. Spool description

2.3.1. Spool G-A

2.3.1.1. Interchange of S-LOK and Gyrolok

2.3.1.2. Size: 1/4", 3/8", 1/2"

2.3.1.3. Maximum working pressure: 5,100 psi (35.2 MPa)

2.3.1.4. Combination: refer to Appendix 1

2.3.2. Spool G-B

2.3.2.1. Interchange of S-LOK and Gyrolok

2.3.2.2. Size: 3/4", 1"

2.3.2.3. Maximum working pressure: 4,200 psi (29.0 MPa)

2.3.2.4. Combination: refer to Appendix 2

2.3.3. Spool G-C

2.3.3.1. Intermix of S-LOK and Gyrolok

2.3.3.2. Size: 1/4", 3/8", 1/2", 3/4, 1"

2.3.3.3. Maximum working pressure: 4,200 psi (29.0 MPa)

2.3.3.4. Combination: refer to Appendix 3

2.4. Material of tube fittings

2.4.1. ASTM A276/479 Type316/316L(Bars)

2.4.2. ASTM A182 F316/316L(Forged)

2.5. Tubing information (ASTM A213/269 TP316/316L)

O.D Size	Thickness	Hardness(HRB)
1/4"	0.065"	78
3/8"	0.065"	74
1/2"	0.065"	77
3/4"	0.083"	86
1"	0.109"	78

2.6. Detail of tube fittings: refer to Appendix 4 ~ Appendix 11

3. Details of inspection

3.1. Summary

This inspection was carried out at Korea Gas Safety Corporation for pneumatic proof test and helium leak test, and at HANSUN ENGINEERING CO., LTD. for hydrostatic proof test and hydrostatic burst test.

The inspector carried out as bellow:

Required witness points:
(1) Pneumatic proof test
(2) Hydrostatic proof test
(3) Hydrostatic burst test
(4) Helium leak test

3.2. Test results

The inspector carried out the witness tests as following.

3.2.1. Pneumatic proof test

3.2.1.1. Test condition

3.2.1.1.1. Test method: ASTM F 1387-99, Annex 3

3.2.1.1.2. Test medium: nitrogen

3.2.1.1.3. Test pressure

3.2.1.1.3.1. Initial pressure: 0.69 Mpa

3.2.1.1.3.2. Increased pressure: 125% of maximu working pressure

3.2.1.1.4. Test sample: each one sample of Spool G-A, G-B and G-C

3.2.1.2. Results

3.2.1.2.1. Spool G-A

		Samples		
Condition	Requirement	1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 44.0 MPa during 5 min.	No leakage	No	-	-

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3.2.1.2.2. Spool G-B

Condition	Requirement	Samples		
		1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 36.3 MPa during 5 min.	No leakage	No	-	-

3.2.1.2.3. Spool G-C

Condition	Requirement	Samples		
		1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 36.3 MPa during 5 min.	No leakage	No	-	-

3.2.1.3. Conclusion

The samples of Spool Spool G-A, G-B and G-C passed the test.

3.2.2. Hydrostatic proof test

3.2.2.1. Test condition

3.2.2.1.1. Test method: ASTM F 1387-99, Annex 4

3.2.2.1.2. Test medium: water

3.2.2.1.3. Test pressure

3.2.2.1.3.1. Initial pressure: 0.69 Mpa

3.2.2.1.3.2. Increased pressure: 150% of maximu working pressure

3.2.2.1.4. Test sample: each one sample of Spool G-A, G-B and G-C

3.2.2.2. Results

3.2.2.2.1. Spool G-A

Condition	Requirement	Samples		
		1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 53.0 MPa during 5 min.	No leakage	No	-	-

3.2.2.2.2. Spool G-B

Condition	Requirement	Samples		
		1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 44.0 MPa during 5 min.	No leakage	No	-	-

3.2.2.2.3. Spool G-C

Condition	Requirement	Samples		
		1	-	-
Test pressure 0.69 MPa during 5 min.	No leakage	No	-	-
Test pressure 44.0 MPa during 5 min.	No leakage	No	-	-

3.2.2.3. Conclusion

The samples of Spool G-A, G-B and G-C passed the test.

3.2.3. Hydrostatic burst test

3.2.3.1. Test condition

3.2.3.1.1. Test method: ASTM F 1387-99, Annex 8

3.2.3.1.2. Test medium: water

3.2.3.1.3. Test pressure

3.2.3.1.3.1. Burst pressure: more than 4 times of maximu working pressure

3.2.3.1.4. Test sample: each one sample of Spool G-A, G-B and G-C

3.2.3.2. Results

3.2.3.2.1. Spool G-A

Condition	Requirement	Samples		
		1	-	-
Test pressure 141 MPa during 1 min.	No leakage	No	-	-
	No burst	No	-	-

3.2.3.2.2. Spool G-B

		Samples		
Condition	Requirement	1	-	-
Test pressure 116 MPa during 1 min.	No leakage	No	-	-
	No burst	No	-	-

3.2.3.2.3. Spool G-C

		Samples		
Condition	Requirement	1	-	-
Test pressure 116 MPa during 1 min.	No leakage	No	-	-
	No burst	No	-	-

3.2.3.3. Conclusion

The samples of Spool G-A, G-B and G-C passed the test.

3.2.4. Helium leak test

3.2.4.1. Test condition

3.2.4.1.1. Test method: Test method A of ASTM E 499-95

3.2.4.1.2. Test medium: helium

3.2.4.1.3. Test pressure: maximum working pressure of each spool

3.2.4.1.4. Test sample: each one sample of Spool G-A, G-B and G-C

3.2.4.2. Results

3.2.4.2.1. Spool G-A

	Samples		
Condition	1	-	-
Leak rate at test pressure 35.2 MPa	maximum 3.0×10^{-8} (atm cc/sec)	-	-

3.2.4.2.2. Spool G-B

	Samples		
Condition	1	-	-
Leak rate at test pressure 29.0 MPa	maximum 3.0×10^{-8} (atm cc/sec)	-	-

3.2.4.2.3. Spool G-C

	Samples		
Condition	1	-	-
Leak rate at test pressure 29.0 MPa	maximum 3.0×10^{-8} (atm cc/sec)	-	-

3.2.4.3. Conclusion

The samples of Spool G-A, G-B and G-C completed the helium leak test with the leak rates less than 3.0×10^{-8} atm cc/sec as referring above results in the section 3.2.4.2.

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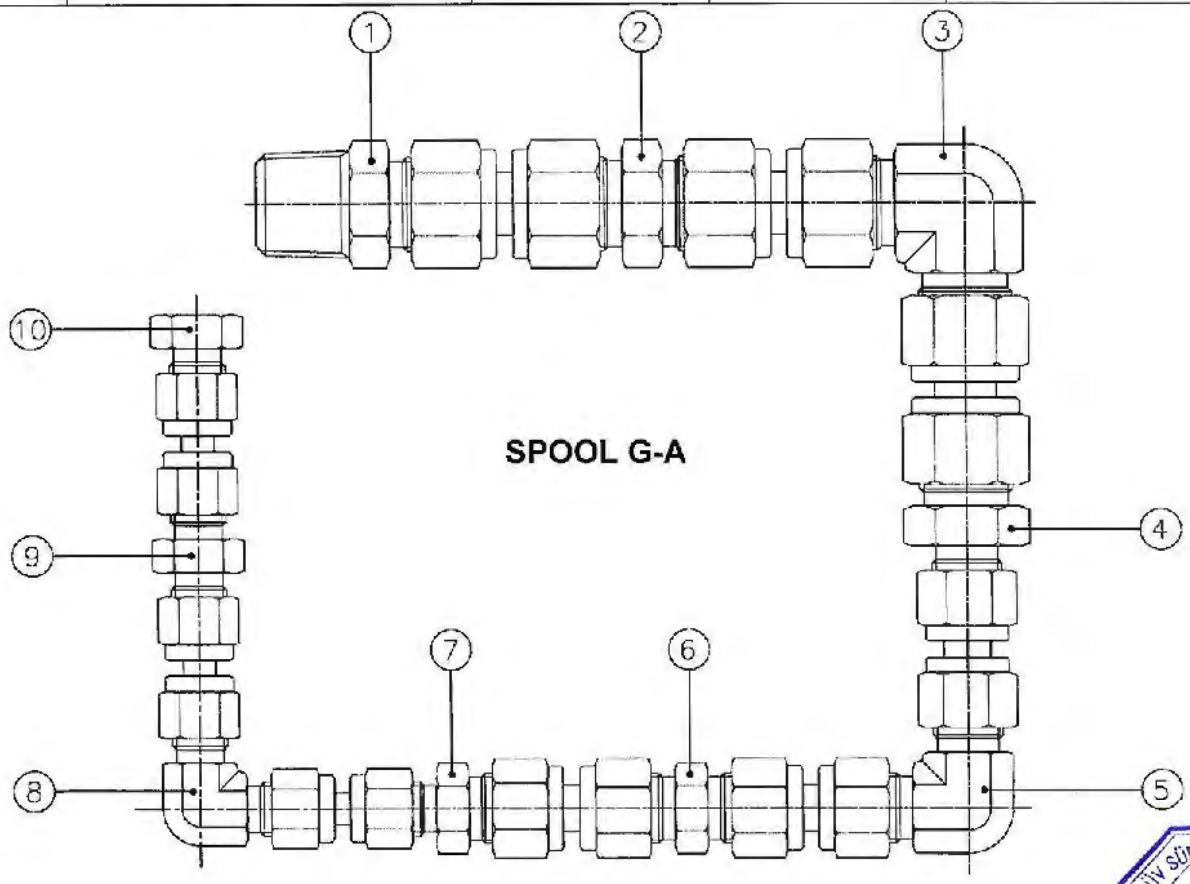
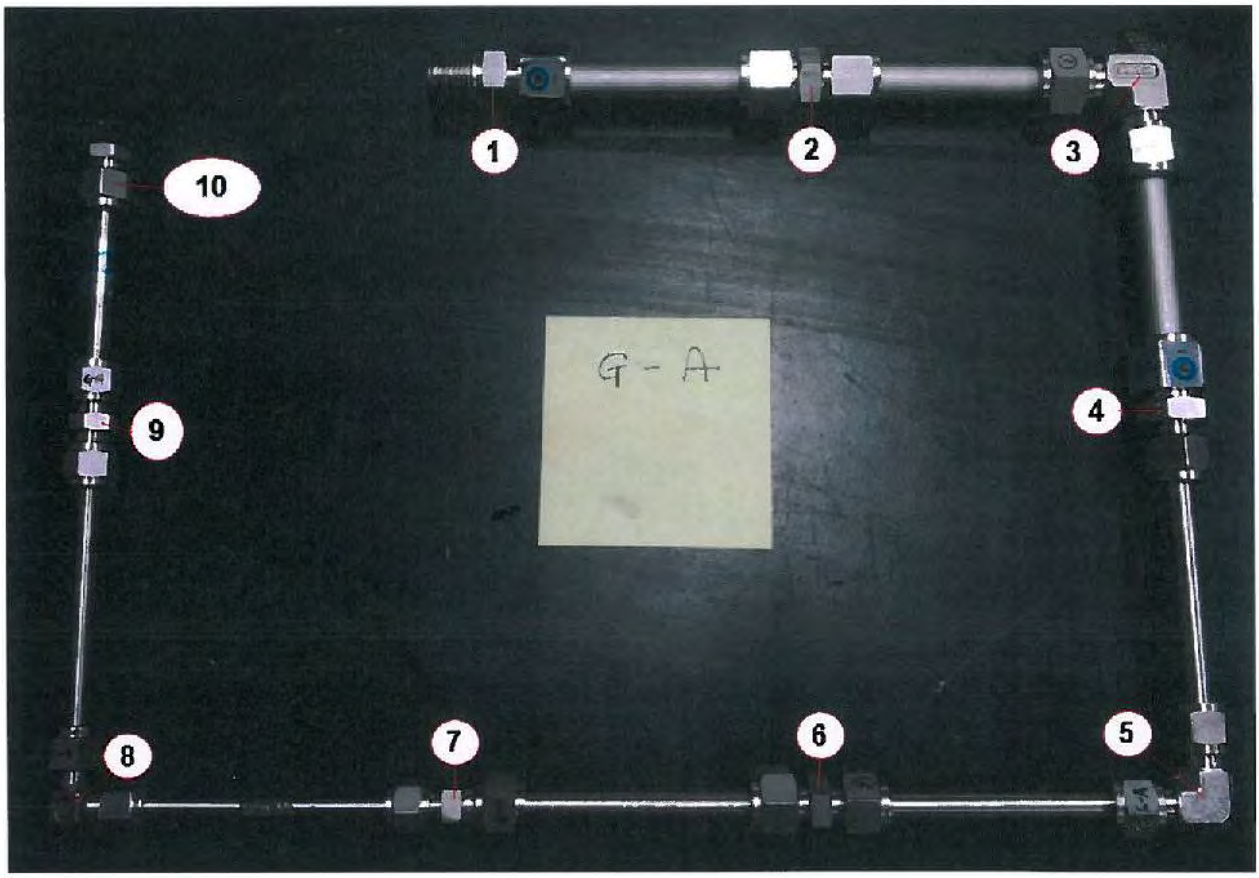
Appendix 1. Combination of Spool G-A

No	Item Name	Nut + Ferrule	Body	S-LOK Part No.
1	Male Connector, O.D 1/2" x M.NPT 1/2"	**S-LOK**	Gyrolok	SMC8-8N-S6
2	Union, O.D 1/2"	Gyrolok	**S-LOK**	SU-8-S6
3	Union Elbow, O.D 1/2"	**S-LOK**	Gyrolok	SL-8-S6
4	Reducing Union, O.D 1/2" x O.D 3/8"	Gyrolok	**S-LOK**	SUR8-6-S6
5	Union Elbow, O.D 3/8"	**S-LOK**	Gyrolok	SL-6-S6
6	Union, O.D 3/8"	Gyrolok	**S-LOK**	SU-6-S6
7	Reducing Union, O.D 3/8" x O.D 1/4"	**S-LOK**	Gyrolok	SUR6-4-S6
8	Union Elbow, O.D 1/4"	Gyrolok	**S-LOK**	SL-4-S6
9	Union, O.D 1/4"	**S-LOK**	Gyrolok	SU-4-S6
10	Cap, O.D 1/4"	Gyrolok	**S-LOK**	SC-4-S6

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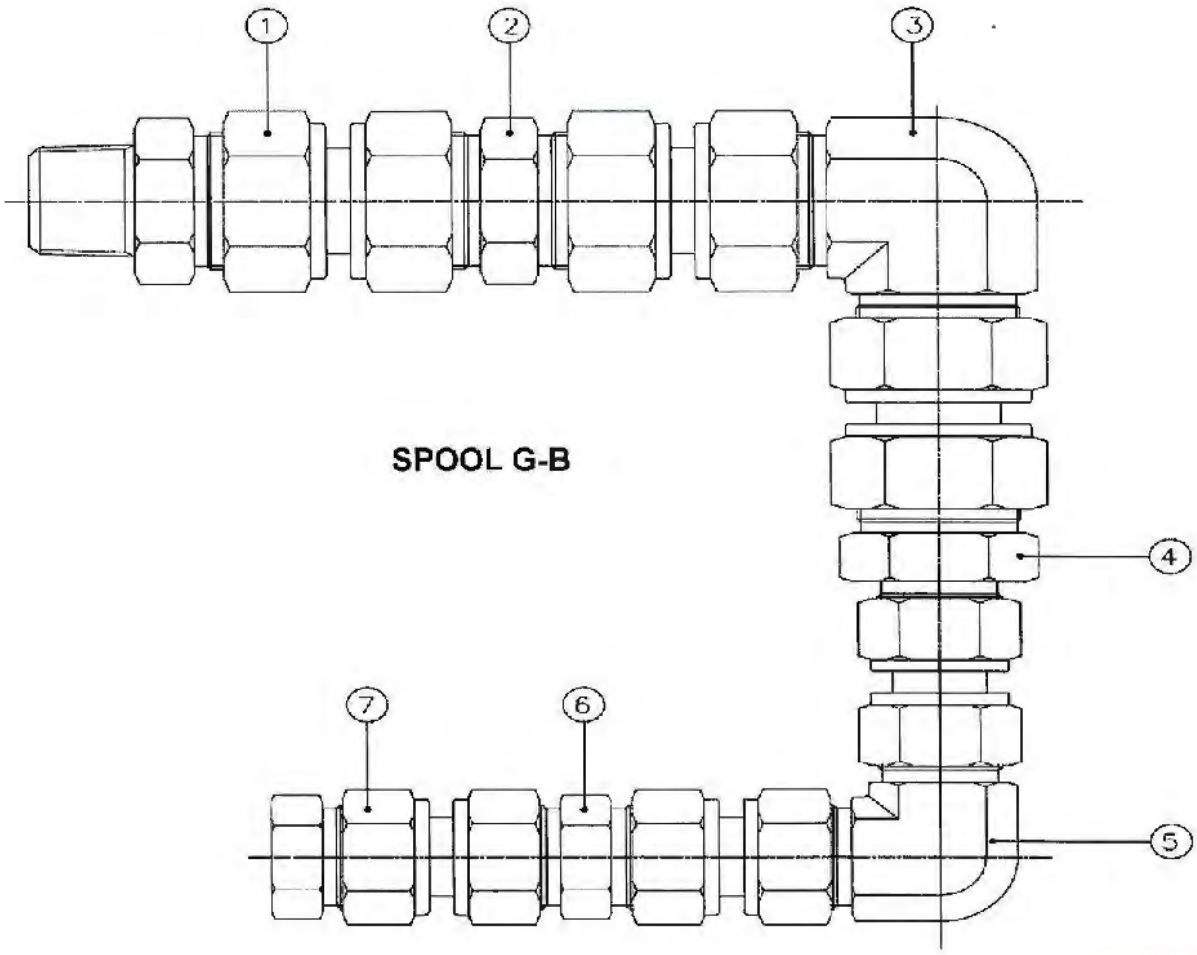
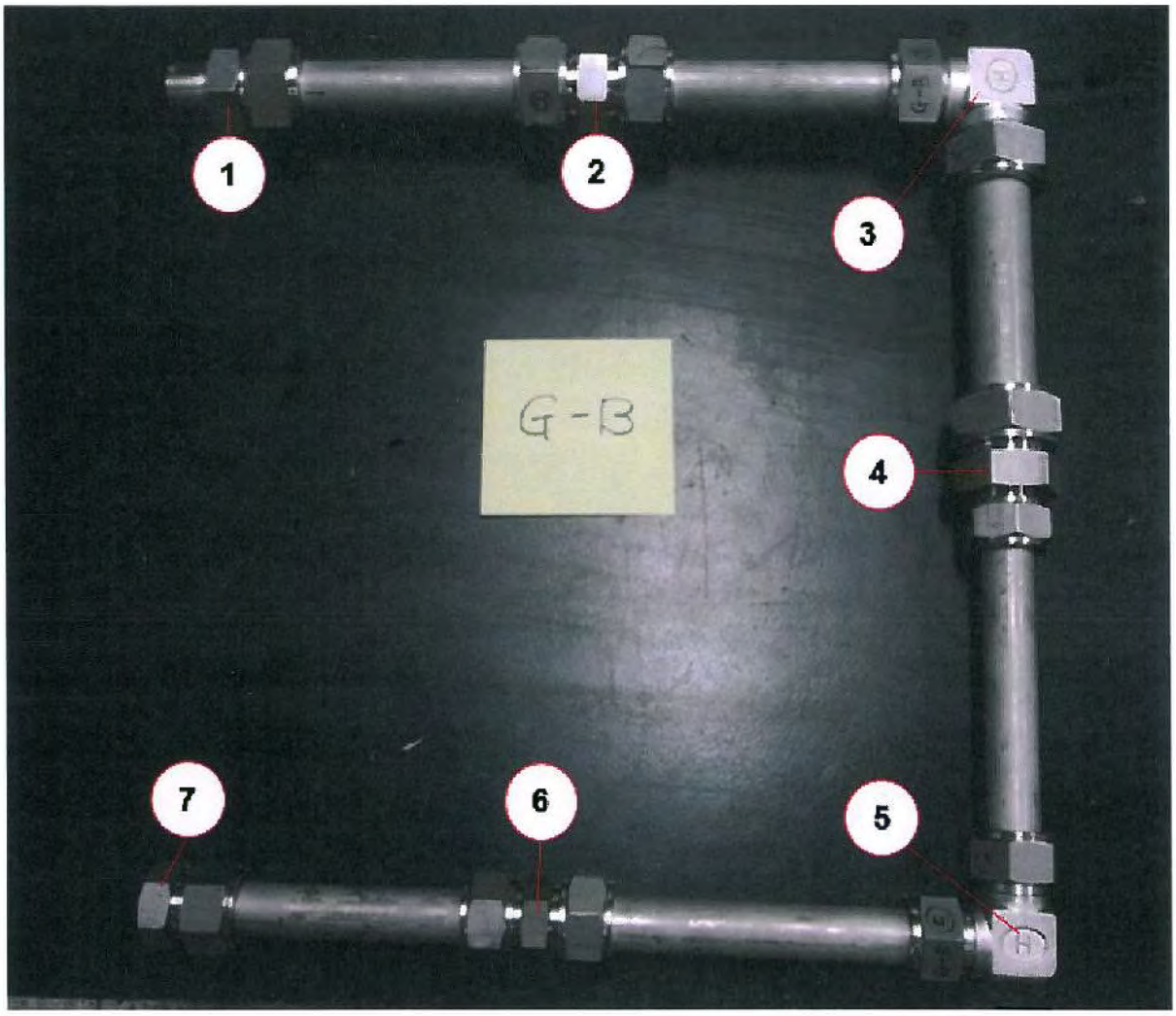
G - A

Appendix 2. Combination of Spool G-B

No	Item Name	Nut + Ferrule	Body	S-LOK Part No.
1	Male Connector, O.D 1" x M.NPT 3/4"	**S-LOK**	Gyrolok	SMC16-12N-S6
2	Union, O.D 1"	Gyrolok	**S-LOK**	SU-16-S6
3	Union Elbow, O.D 1"	**S-LOK**	Gyrolok	SL-16-S6
4	Reducing Union, O.D 1" x O.D 3/4"	Gyrolok	**S-LOK**	SUR16-12-S6
5	Union Elbow, O.D 3/4"	**S-LOK**	Gyrolok	SL-12-S6
6	Union, O.D 3/4"	Gyrolok	**S-LOK**	SU-12-S6
7	Cap, O.D 3/4"	**S-LOK**	Gyrolok	SC-12-S6



SPOOL G-B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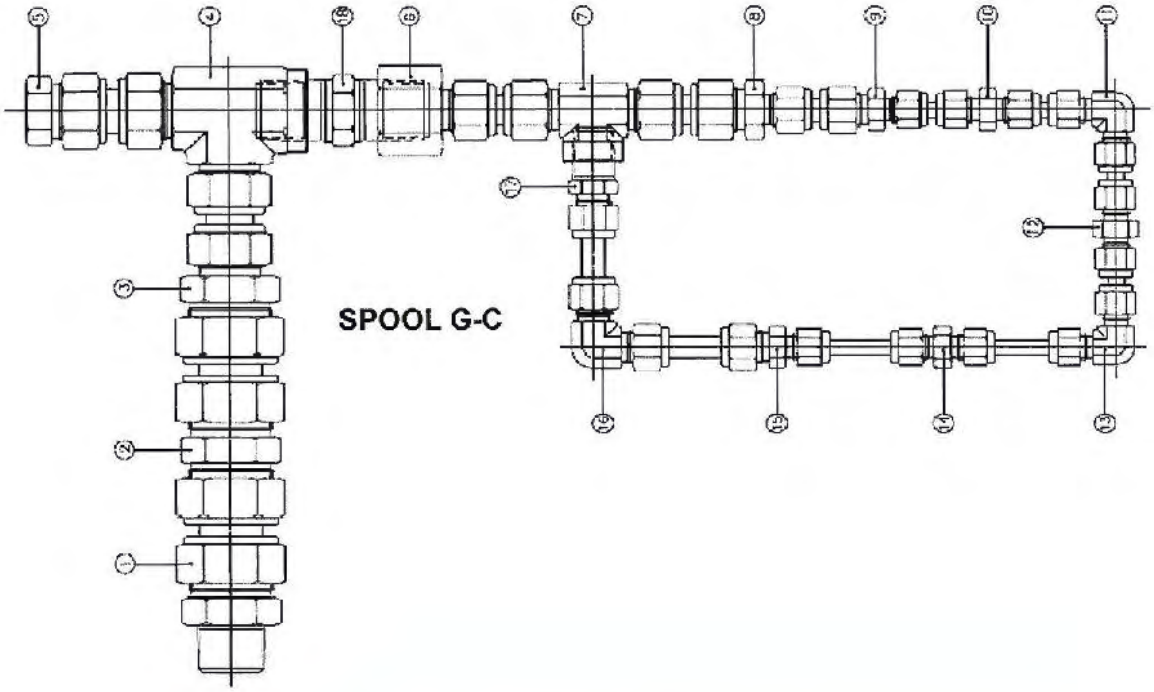
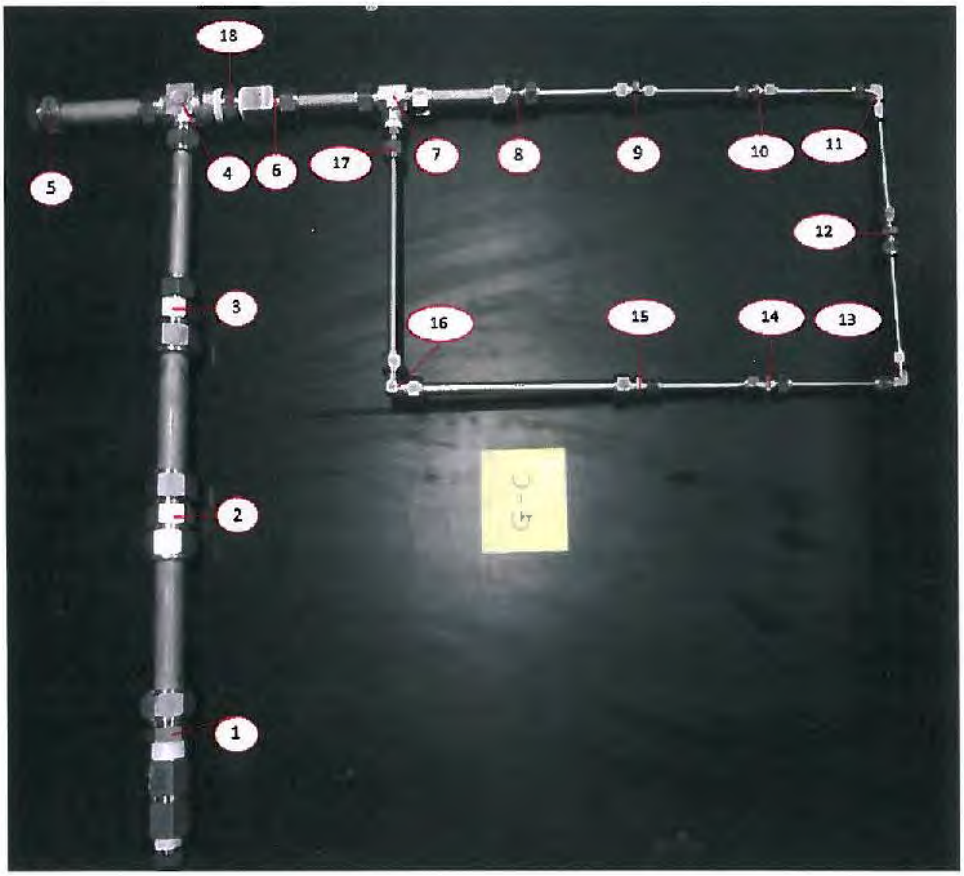
Appendix 3. Combination of Spool G-C

No	Item Name	Nut	Ferrule	Body	S-LOK Part No.
1	Male Connector, O.D 1" x M.NPT 3/4"	Gyrolok	**S-LOK**	**S-LOK**	SMC16-12N-S6
2	Union, O.D 1"	**S-LOK**	Gyrolok	Gyrolok	SU-16-S6
3	Reducing Union, O.D 1" x O.D 3/4"	**S-LOK**	Gyrolok	**S-LOK**	SUR16-12-S6
4	Female Run Tee, O.D 3/4" x F.NPT 3/4"	Gyrolok	**S-LOK**	Gyrolok	STRF12-12N-S6
5	Cap. O.D 3/4"	Gyrolok	**S-LOK**	**S-LOK**	SC-12-S6
6	Female Connector, O.D1/2" x F.NPT3/4"	**S-LOK**	Gyrolok	Gyrolok	SCF8-12N-S6
7	Female Branch Tee, O.D1/2" x F.NPT 3/8"	**S-LOK**	Gyrolok	**S-LOK**	STBF8-6N-S6
8	Reducing Union, O.D 1/2" x O.D 3/8"	Gyrolok	**S-LOK**	Gyrolok	SUR8-6-S6
9	Reducing Union, O.D 3/8" x O.D 1/4"	Gyrolok	**S-LOK**	**S-LOK**	SUR6-4-S6
10	Union, O.D 1/4"	**S-LOK**	Gyrolok	Gyrolok	SU-4-S6
11	Union Elbow, O.D 1/4"	**S-LOK**	Gyrolok	**S-LOK**	SL-4-S6
12	Union, O.D 1/4"	Gyrolok	**S-LOK**	Gyrolok	SU-4-S6
13	Union Elbow, O.D 1/4"	Gyrolok	**S-LOK**	**S-LOK**	SL-4-S6
14	Union, O.D 1/4"	**S-LOK**	Gyrolok	Gyrolok	SU-4-S6
15	Reducing Union, O.D 3/8" x O.D 1/4"	**S-LOK**	Gyrolok	**S-LOK**	SUR6-4-S6
16	Union Elbow, O.D 3/8"	Gyrolok	**S-LOK**	Gyrolok	SL-6-S6
17	Male Connector, O.D 3/8" x M.NPT 3/8"	**S-LOK**	Gyrolok	**S-LOK**	SMC6-6N-S6
18	Hex Nipple, M.NPT 3/4"	N/A			P-SHN-12N-S6


SPOOL G-C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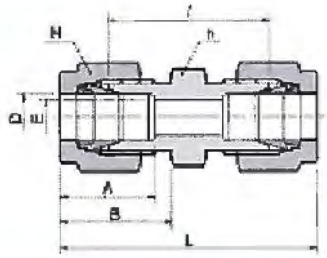
Appendix 4. Detail information of S-LOK tube fittings - SU, Union

Union SU



Connects fractional tube

Part No.	Tube O.D D		E	Width across flat h		H		A	B	l	L
	in	mm	Min.	in	mm	in	mm				
SU-1	1/16	1.59	1.27	5/16	7.93	5/16	7.93	8.63	10.92	17.50	25.15
SU-2	1/8	3.17	2.28	7/16	11.11	7/16	11.11	12.70	15.24	22.35	35.56
SU-3	3/16	4.76	3.04	7/16	11.11	1/2	12.70	13.71	18.00	24.13	37.33
SU-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	26.16	40.89
SU-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	28.19	42.92
SU-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	30.22	44.96
SU-8	1/2	12.70	10.41	13/16	20.64	7/8	22.22	22.86	21.84	30.98	51.30
SU-10	5/8	15.87	12.70	15/16	23.81	1	25.40	24.38	21.84	31.75	52.07
SU-12	3/4	19.05	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	33.27	53.59
SU-14	7/8	22.22	18.28	1-3/16	30.16	1-1/4	31.75	25.90	21.84	35.05	55.37
SU-16	1	25.40	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	40.38	64.77
SU-20	1-1/4	31.75	27.68	1-3/4	44.45	1-7/8	47.63	41.14	38.86	48.00	92.20
SU-24	1-1/2	38.10	34.03	2-1/8	53.97	2-1/4	57.15	50.03	45.21	53.60	107.95
SU-32	2	50.80	45.97	2-3/4	69.85	3	76.20	67.56	62.73	74.70	149.35

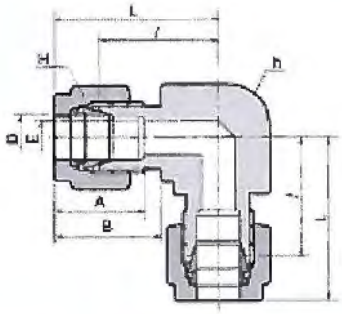
Connects metric tube

Part No.	Tube O.D. D	E Min.	Width across flat h	H	A	B	l	L
SU-2M	2	1.7	12	12	12.9	15.3	22.4	35.6
SU-3M	3	2.4	12	12	12.9	15.3	22.1	35.3
SU-4M	4	2.4	12	12	13.7	16.1	24.1	37.3
SU-6M	6	4.8	14	14	15.3	17.7	26.2	41.0
SU-8M	8	6.4	15	16	16.2	18.6	28.2	43.2
SU-10M	10	7.9	18	19	17.2	19.5	31.0	46.2
SU-12M	12	9.5	22	22	22.8	22.0	31.0	51.2
SU-15M	15	11.9	24	25	24.4	22.0	31.8	52.0
SU-16M	16	12.7	24	25	24.4	22.0	31.8	52.0
SU-18M	18	15.1	27	30	24.4	22.0	33.3	53.5
SU-20M	20	15.9	30	32	26.0	22.0	34.8	55.0
SU-22M	22	18.3	30	32	26.0	22.0	34.8	55.0
SU-25M	25	21.8	35	38	31.3	26.5	40.4	65.0
SU-28M	28	21.8	41	46	36.6	36.6	43.4	85.0
SU-32M	32	26.6	46	50	42.0	41.6	51.3	97.3
SU-38M	38	33.7	55	60	48.4	47.9	58.4	113.6

Korea

Appendix 5. Detail information of S-LOK tube fittings - SU, Union Elbow

Union Elbow
SL



Connects fractional tube

Part No.	Tube O.D. D		E	Width across flat				A	B	l	L
				h		H					
	in	mm	Min.	in	mm	in	mm				
SL-1	1/16	1.59	1.27	3/8	9.52	5/16	7.93	8.63	10.92	14.00	17.88
SL-2	1/8	3.17	2.28	3/8	9.52	7/16	11.11	12.70	15.24	15.74	22.35
SL-3	3/16	4.76	3.04	1/2	12.70	1/2	12.70	13.71	16.00	17.78	24.38
SL-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92
SL-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70
SL-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48
SL-8	1/2	12.70	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06
SL-10	5/8	15.87	12.70	15/16	23.81	1	25.40	24.38	21.84	28.70	38.80
SL-12	3/4	19.05	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	29.71	39.87
SL-14	7/8	22.22	18.28	1-1/4	31.75	1-1/4	31.75	25.90	21.84	34.54	44.70
SL-16	1	25.40	22.35	1-3/8	34.9	1-1/2	38.10	31.24	26.41	36.83	49.02
SL-20	1-1/4	31.75	27.68	1-11/16	42.86	1-7/8	47.63	41.14	38.86	44.50	66.54
SL-24	1-1/2	38.10	34.03	2	50.80	2-1/4	57.15	50.03	45.21	50.80	77.97
SL-32	2	50.80	45.97	2-3/4	69.85	3	76.20	67.56	62.73	69.80	107.16

Connects metric tube

Part No.	Tube O.D. D	E	Width across flat		A	B	l	L
			h	H				
		Min.						
SL-2M	2	1.7	9.5	12	12.9	15.3	15.7	22.3
SL-3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
SL-4M	4	2.4	12.7	12	13.7	16.4	18.8	25.4
SL-6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
SL-8M	8	6.4	14.3	16	16.2	18.6	21.3	28.8
SL-10M	10	7.9	17.5	19	17.2	19.5	23.9	31.5
SL-12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
SL-15M	15	11.9	25.4	25	24.4	22.0	28.7	38.8
SL-16M	16	12.7	25.4	25	24.4	22.0	28.7	38.8
SL-18M	18	15.1	27.0	30	24.4	22.0	29.7	39.8
SL-20M	20	15.9	31.8	32	26.0	22.0	34.5	42.6
SL-22M	22	18.3	31.8	32	26.0	22.0	34.5	42.6
SL-25M	25	21.8	34.9	36	31.3	26.5	36.8	49.1
SL-28M	28	21.8	41.0	46	36.6	36.6	43.2	64.0
SL-32M	32	28.6	46.0	50	42.0	41.6	49.3	72.3
SL-36M	36	33.7	55.0	60	49.4	47.9	56.4	84.0

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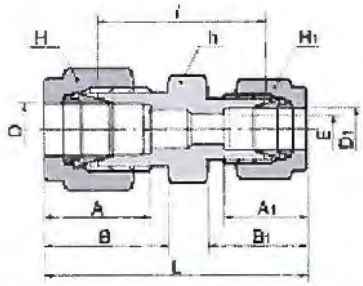
Appendix 6. Detail information of S-LOK tube fittings - SUR, Reducing Union

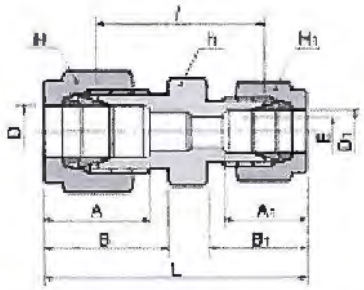
Reducing Union
SUR



Connects fractional tube

Part No.	Tube O.D D		Tube O.D D1		E	Width across flat h		Width across flat H		Width across flat H1		A	A1	B	B1	l	L
	in	mm	in	mm	Min.	in	mm	in	mm	in	mm						
SUR-2-1	1/8	3.18	1/16	1.59	1.27	7/16	11.11	7/16	11.11	5/16	7.93	12.70	8.63	16.24	10.92	20.60	30.91
SUR-3-1	3/16	4.76	1/16	1.59	1.27	7/16	11.11	1/2	12.70	5/16	7.93	13.71	8.63	16.00	10.92	21.84	32.25
SUR-3-2	3/16	4.76	1/8	3.17	2.26	7/16	11.11	1/2	12.70	7/16	11.11	13.71	12.70	16.00	15.24	23.36	36.57
SUR-4-1	1/4	6.35	1/16	1.59	1.27	1/2	12.70	9/16	14.28	5/16	7.93	15.24	8.63	17.78	10.92	23.11	34.29
SUR-4-2	1/4	6.35	1/8	3.17	2.26	1/2	12.70	9/16	14.28	7/16	11.11	15.24	12.70	17.78	15.24	24.63	38.60
SUR-4-3	1/4	6.35	3/16	4.76	3.04	1/2	12.70	9/16	14.28	1/2	12.70	15.24	13.71	17.78	16.00	25.40	39.37
SUR-5-2	5/16	7.93	1/8	3.17	2.26	9/16	14.28	5/8	15.87	7/16	11.11	16.25	12.70	18.54	15.24	25.90	39.87
SUR-5-4	5/16	7.93	1/4	6.35	4.82	9/16	14.28	5/8	15.87	9/16	14.28	16.25	15.24	18.54	17.78	27.43	42.16
SUR-6-1	3/8	9.52	1/16	1.59	1.27	5/8	15.87	11/16	17.46	5/16	7.93	16.76	8.63	19.30	10.92	25.40	36.57
SUR-6-2	3/8	9.52	1/8	3.17	2.26	5/8	15.87	11/16	17.46	7/16	11.11	16.76	12.70	19.30	15.24	26.92	40.89
SUR-6-4	3/8	9.52	1/4	6.35	4.82	5/8	15.87	11/16	17.46	9/16	14.28	16.76	15.24	19.30	17.78	28.44	43.16
SUR-6-5	3/8	9.52	5/16	7.93	6.35	5/8	15.87	11/16	17.46	5/8	15.87	16.76	16.25	19.30	18.54	29.46	44.19
SUR-8-2	1/2	12.70	1/8	3.17	2.26	13/16	20.64	7/8	22.22	7/16	11.11	22.86	12.70	21.84	15.24	26.44	45.21
SUR-8-4	1/2	12.70	1/4	6.35	4.82	13/16	20.64	7/8	22.22	9/16	14.28	22.86	15.24	21.84	17.78	28.46	46.99
SUR-8-6	1/2	12.70	3/8	9.52	7.11	13/16	20.64	7/8	22.22	11/16	17.46	22.86	16.76	21.84	19.30	30.98	48.51
SUR-10-6	5/8	15.87	3/8	9.52	7.11	15/16	23.81	1	25.40	11/16	17.46	24.38	16.76	21.84	19.30	31.75	49.27
SUR-10-8	5/8	15.87	1/2	12.70	10.41	15/16	23.81	1	25.40	7/8	22.22	24.38	22.86	21.84	21.84	31.75	52.07
SUR-12-4	3/4	19.05	1/4	6.35	4.82	1-1/16	26.98	1-1/8	28.57	9/16	14.48	24.38	15.24	21.84	17.78	31.75	49.27
SUR-12-6	3/4	19.05	3/8	9.52	7.11	1-1/16	26.98	1-1/8	28.57	11/16	17.46	24.38	16.76	21.84	19.30	33.27	50.80
SUR-12-8	3/4	19.05	1/2	12.70	10.41	1-1/16	26.98	1-1/8	28.57	7/8	22.22	24.38	22.86	21.84	21.84	33.27	53.59
SUR-12-10	3/4	19.05	5/8	15.87	12.70	1-1/16	26.98	1-1/8	28.57	1	25.40	24.38	24.38	21.84	21.84	33.27	53.59
SUR-16-8	1	25.40	1/2	12.70	10.41	1-3/8	34.92	1-1/2	38.10	7/8	22.22	31.24	22.86	26.41	21.84	40.89	63.24
SUR-16-12	1	25.40	3/4	19.05	15.74	1-3/8	34.92	1-1/2	38.10	1-1/8	28.58	31.24	24.38	26.41	21.84	40.38	62.73

Reducing Union
SUR



Connects metric tube

Part No	Tube O.D.		E	Width across flat			A	A1	B	B1	l	L
	D	D1	Min.	h	H	H1						
SUR-3M-2M	3	2	1.7	12	12	12	12.9	12.9	15.3	15.3	22.1	35.3
SUR-6M-2M	6	2	1.7	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
SUR-6M-3M	6	3	2.4	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
SUR-6M-4M	6	4	2.4	14	14	12	15.3	13.7	17.7	16.1	25.4	39.4
SUR-8M-8M	8	8	4.8	15	16	14	16.2	15.3	18.6	17.7	27.4	42.3
SUR-10M-8M	10	8	4.8	18	19	14	17.2	15.3	19.5	17.7	29.5	44.5
SUR-10M-8M	10	8	6.4	18	19	16	17.2	16.2	19.5	18.6	30.0	45.1
SUR-12M-8M	12	6	4.8	22	22	14	22.8	15.3	22.0	17.7	29.5	47.0
SUR-12M-8M	12	8	6.4	22	22	16	22.8	16.2	22.0	18.6	30.2	47.8
SUR-12M-10M	12	10	7.9	22	22	19	22.8	17.2	22.0	19.5	31.0	48.7
SUR-16M-10M	16	10	7.9	24	25	19	24.4	17.2	22.0	19.5	31.8	49.5
SUR-16M-12M	16	12	9.5	24	25	22	24.4	22.8	22.0	22.0	31.8	52.0
SUR-18M-12M	18	12	9.5	27	30	22	24.4	22.8	22.0	22.0	33.3	53.5
SUR-25M-18M	25	18	15.1	35	38	30	31.3	24.4	26.5	22.0	38.6	61.0
SUR-25M-20M	25	20	15.9	35	38	32	31.3	26.0	26.5	22.0	39.9	62.3

Connects metric tube to fractional tube

Part No.	Tube O.D.			E	Width across flat			A	A1	B	B1	l	L
	D	D1		Min.	h	H	H1						
		in	mm										
SUR-3M-2	3	1/8	3.17	2.4	12	12	11.1	12.9	12.8	15.3	15.2	22.1	35.2
SUR-4M-2	4	1/8	3.17	2.4	12	12	11.1	13.7	12.8	16.1	15.2	23.4	36.5
SUR-4M-4	4	1/4	6.35	2.4	14	12	14.3	13.7	15.3	16.1	17.7	25.4	39.4
SUR-6M-2	6	1/8	3.17	2.4	14	14	11.1	15.3	12.8	17.7	15.2	24.6	38.5
SUR-6M-4	6	1/4	6.35	4.8	14	14	14.3	15.3	15.8	17.7	17.7	26.2	41.0
SUR-6M-5	6	5/16	7.93	4.8	14	14	15.9	15.3	16.2	17.7	18.6	27.4	42.3
SUR-8M-4	8	1/4	6.35	4.8	15	16	14.3	16.2	15.3	18.6	17.7	27.4	42.3
SUR-10M-2	10	1/8	3.17	2.4	18	19	11.1	17.2	12.8	19.5	15.2	27.7	41.8
SUR-10M-4	10	1/4	6.35	4.8	18	19	14.3	17.2	15.3	19.5	17.7	29.5	44.5
SUR-10M-5	10	5/16	7.93	6.4	18	19	15.9	17.2	16.2	19.5	18.6	30.3	45.1
SUR-10M-6	10	3/8	9.52	7.1	18	19	17.5	17.2	16.9	19.5	18.6	31.0	45.9
SUR-12M-5	12	5/16	7.93	6.4	22	22	15.9	22.8	16.2	22.0	18.6	30.2	47.8
SUR-12M-6	12	3/8	9.52	7.1	22	22	17.5	22.8	16.9	22.0	19.2	31.0	48.4
SUR-12M-8	12	1/2	12.70	9.5	22	22	22.2	22.8	22.8	22.0	22.0	31.0	51.2
SUR-15M-8	15	1/2	12.70	10.3	24	25	22.2	24.4	22.8	22.0	22.0	31.8	52.0
SUR-16M-10	16	5/8	15.87	12.7	24	25	25.4	24.4	24.4	22.0	22.0	31.8	52.0
SUR-18M-12	18	3/4	19.05	15.1	27	30	28.6	24.4	24.4	22.0	22.0	33.3	53.5
SUR-20M-12	20	3/4	19.05	15.9	30	32	28.6	26.0	24.4	22.0	22.0	34.6	54.9
SUR-20M-16	20	1	25.40	15.9	34.9	32	38.1	26.0	31.2	22.0	25.4	38.0	60.3
SUR-22M-16	22	1	25.40	18.3	34.9	32	38.1	26.0	31.2	22.0	25.4	38.2	60.3

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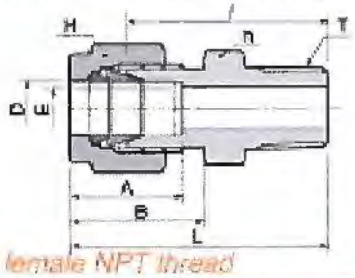
Appendix 7. Detail information of S-LOK tube fittings – SMC-N, Male Connector

Male Connector
SMC-N



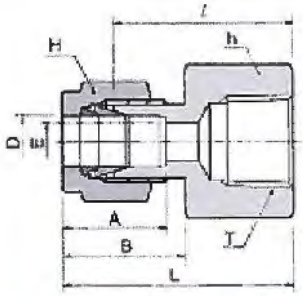
Connects fractional tube to female NPT thread

Part No.	Tube O.D. D		T (NPT)	E Min	Width across flat h		H		A	B	I	L
	in	mm			in	mm	in	mm				
SMC-1-1N	1/16	1.59	1/16	1.27	5/16	7.93	5/16	7.93	8.63	10.92	20.00	23.83
SMC-1-2N	1/16	1.59	1/8	1.27	7/16	11.11	5/16	7.93	8.63	10.92	22.35	26.23
SMC-1-4N	1/16	1.59	1/4	1.27	9/16	14.28	5/16	7.93	8.63	10.92	27.17	30.99
SMC-2-1N	1/8	3.17	1/16	2.28	7/16	11.11	7/16	11.11	12.70	15.24	23.11	29.71
SMC-2-2N	1/8	3.17	1/8	2.28	7/16	11.11	7/16	11.11	12.70	15.24	23.87	30.48
SMC-2-4N	1/8	3.17	1/4	2.28	9/16	14.28	7/16	11.11	12.70	15.24	28.95	35.56
SMC-2-6N	1/8	3.17	3/8	2.28	11/16	17.46	7/16	11.11	12.70	15.24	29.21	36.81
SMC-2-8N	1/8	3.17	1/2	2.28	7/8	22.22	7/16	11.11	12.70	15.24	35.56	42.16
SMC-3-2N	3/16	4.76	1/8	3.04	7/16	11.11	1/2	12.70	13.71	16.00	24.63	31.24
SMC-3-4N	3/16	4.76	1/4	3.04	9/16	14.28	1/2	12.70	13.71	16.00	29.71	36.32
SMC-4-1N	1/4	6.35	1/16	4.82	1/2	12.70	9/16	14.28	15.24	17.78	25.40	32.76
SMC-4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	25.40	32.76
SMC-4-4N	1/4	6.35	1/4	4.82	9/16	14.28	9/16	14.28	15.24	17.78	30.48	37.84
SMC-4-6N	1/4	6.35	3/8	4.82	11/16	17.46	9/16	14.28	15.24	17.78	30.96	38.35
SMC-4-8N	1/4	6.35	1/2	4.82	7/8	22.22	9/16	14.28	15.24	17.78	37.33	44.70
SMC-4-12N	1/4	6.35	3/4	4.82	1-1/16	26.98	9/16	14.28	15.24	17.78	38.86	46.22
SMC-5-2N	5/16	7.93	1/8	4.82	9/16	14.28	5/8	15.87	16.25	18.54	26.67	34.03
SMC-5-4N	5/16	7.93	1/4	6.35	9/16	14.28	5/8	15.87	16.25	18.54	31.24	38.60
SMC-5-6N	5/16	7.93	3/8	6.35	11/16	17.46	5/8	15.87	16.25	18.54	31.75	39.11
SMC-5-8N	5/16	7.93	1/2	6.35	7/8	22.22	5/8	15.87	16.25	18.54	38.11	45.60
SMC-6-2N	3/8	9.52	1/8	4.82	5/8	15.87	11/16	17.46	16.76	19.30	27.94	35.30
SMC-6-4N	3/8	9.52	1/4	7.11	5/8	15.87	11/16	17.46	16.76	19.30	32.51	39.87
SMC-6-6N	3/8	9.52	3/8	7.11	11/16	17.46	11/16	17.46	16.76	19.30	32.51	39.87
SMC-6-8N	3/8	9.52	1/2	7.11	7/8	22.22	11/16	17.46	16.76	19.30	38.86	46.22
SMC-6-12N	3/8	9.52	3/4	7.11	1-1/16	26.98	11/16	17.46	16.76	19.30	40.36	47.75
SMC-8-2N	1/2	12.70	1/8	4.82	13/16	20.64	7/8	22.22	22.86	21.84	28.70	38.66
SMC-8-4N	1/2	12.70	1/4	7.11	13/16	20.64	7/8	22.22	22.86	21.84	33.27	43.43
SMC-8-6N	1/2	12.70	3/8	9.65	13/16	20.64	7/8	22.22	22.86	21.84	33.27	43.43
SMC-8-8N	1/2	12.70	1/2	10.41	7/8	22.22	7/8	22.22	22.86	21.84	38.86	49.02
SMC-8-12N	1/2	12.70	3/4	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	40.38	50.54
SMC-8-16N	1/2	12.70	1	10.41	1-3/8	34.92	7/8	22.22	22.86	21.84	46.99	57.15
SMC-10-8N	5/8	15.87	1/2	9.65	15/16	23.81	1	25.40	24.38	21.84	34.03	44.19
SMC-10-8N	5/8	15.87	1/2	11.93	15/16	23.81	1	25.40	24.38	21.84	38.86	49.02
SMC-10-12N	5/8	15.87	3/4	12.70	1-1/16	26.98	1	25.40	24.38	21.84	40.38	50.54
SMC-12-8N	3/4	19.05	1/2	11.93	1-1/16	26.98	1-1/8	28.58	24.38	21.84	40.38	50.54
SMC-12-12N	3/4	19.05	3/4	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	40.38	50.54
SMC-12-16N	3/4	19.05	1	15.74	1-3/8	34.92	1-1/8	28.58	24.38	21.84	46.99	57.15
SMC-14-12N	7/8	22.22	3/4	15.74	1-3/16	30.16	1-1/4	31.75	25.90	21.84	40.38	50.54
SMC-14-16N	7/8	22.22	1	18.28	1-3/8	34.92	1-1/4	31.75	25.90	21.84	46.99	57.15
SMC-16-8N	1	25.40	1/2	11.93	1-3/8	34.92	1-1/2	38.10	31.24	26.41	45.21	57.40
SMC-16-12N	1	25.40	3/4	15.74	1-3/8	34.92	1-1/2	38.10	31.24	26.41	45.21	57.40
SMC-16-16N	1	25.40	1	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	50.03	62.23
SMC-20-16N	1-1/4	31.75	1	22.35	1-3/4	44.45	1-7/8	47.63	41.14	38.86	55.11	77.21
SMC-20-20N	1-1/4	31.75	1-1/4	27.68	1-3/4	44.45	1-7/8	47.63	41.14	38.86	55.11	77.21
SMC-20-24N	1-1/4	31.75	1-1/2	27.68	1-3/4	44.45	1-7/8	47.63	41.14	38.86	60.54	82.64
SMC-24-20N	1-1/2	38.10	1-1/4	27.68	2-1/8	53.98	2-1/4	57.15	50.03	45.21	59.42	86.60
SMC-24-24N	1-1/2	38.10	1-1/2	34.03	2-1/8	53.98	2-1/4	57.15	50.03	45.21	61.72	88.90
SMC-24-32N	1-1/2	38.10	2	34.03	2-3/4	69.85	2-1/4	57.15	50.03	45.21	62.42	99.75
SMC-32-8N	2	50.80	1/2	11.93	2-3/4	69.85	3	76.20	67.56	62.73	68.40	105.73
SMC-32-20N	2	50.80	1-1/4	45.97	2-3/4	69.85	3	76.20	67.56	62.73	71.40	108.73
SMC-32-24N	2	50.80	1-1/2	45.97	2-3/4	69.85	3	76.20	67.56	62.73	75.50	112.83
SMC-32-32N	2	50.80	2	45.97	2-3/4	69.85	3	76.20	67.56	62.73	76.20	113.53

Korea

Appendix 8. Detail information of S-LOK tube fittings – SCF, Female Connector

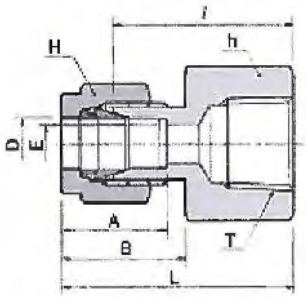
Female Connector
SCF

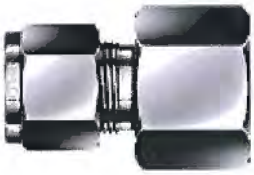


Connects fractional tube to male NPT thread

Part No.	Tube O.D. D		T (NPT)	E Min.	Width across flat h		H		A	B	I	L
	in	mm			in	mm	in	mm				
SCF - 1-1N	1/16	1.59	1/16	1.27	7/16	11.11	5/16	7.93	6.63	10.92	19.81	23.62
SCF - 1-2N	1/16	1.59	1/8	1.27	9/16	14.26	5/16	7.93	6.63	10.92	20.57	24.38
SCF - 2-2N	1/8	3.17	1/8	2.28	9/16	14.26	7/16	11.11	12.70	15.24	22.09	28.70
SCF - 2-4N	1/8	3.17	1/4	2.28	3/4	19.05	7/16	11.11	12.70	15.24	26.92	33.52
SCF - 3-2N	3/16	4.76	1/8	3.04	9/16	14.26	1/2	12.70	13.71	16.00	23.11	29.71
SCF - 4-2N	1/4	6.35	1/8	4.82	9/16	14.26	9/16	14.28	15.24	17.78	23.87	31.24
SCF - 4-4N	1/4	6.35	1/4	4.82	3/4	19.05	9/16	14.28	15.24	17.78	28.44	35.81
SCF - 4-6N	1/4	6.35	3/8	4.82	7/8	22.22	9/16	14.28	15.24	17.78	30.22	37.59
SCF - 4-8N	1/4	6.35	1/2	4.82	1-1/16	26.98	9/16	14.28	15.24	17.78	35.05	42.41
SCF - 5-2N	5/16	7.93	1/8	6.35	9/16	14.26	5/8	15.87	16.25	18.54	24.63	32.00
SCF - 5-4N	5/16	7.93	1/4	6.35	3/4	19.05	5/8	15.87	16.25	18.54	29.46	36.83
SCF - 6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	25.40	32.76
SCF - 6-4N	3/8	9.52	1/4	7.11	3/4	19.05	11/16	17.46	16.76	19.30	30.22	37.59
SCF - 6-6N	3/8	9.52	3/8	7.11	7/8	22.22	11/16	17.46	16.76	19.30	31.75	39.11
SCF - 6-8N	3/8	9.52	1/2	7.11	1-1/16	26.98	11/16	17.46	16.76	19.30	36.57	43.94
SCF - 6-12N	3/8	9.52	3/4	7.11	1-5/16	33.33	11/16	17.46	16.76	19.30	40.38	47.75
SCF - 8-4N	1/2	12.70	1/4	10.41	1-3/16	20.64	7/8	22.22	22.86	21.84	30.22	40.36
SCF - 8-6N	1/2	12.70	3/8	10.41	7/8	22.22	7/8	22.22	22.86	21.84	31.75	41.91
SCF - 8-8N	1/2	12.70	1/2	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	36.57	46.73
SCF - 8-12N	1/2	12.70	3/4	10.41	1-5/16	33.33	7/8	22.22	22.86	21.84	38.10	48.26
SCF - 10-6N	5/8	15.87	3/8	12.70	15/16	23.81	1	25.40	24.38	21.84	31.75	41.91
SCF - 10-8N	5/8	15.87	1/2	12.70	1-1/16	26.96	1	25.40	24.38	21.84	36.57	46.73
SCF - 10-12N	5/8	15.87	3/4	12.70	1-5/16	33.33	1	25.40	24.38	21.84	38.10	48.26
SCF - 12-8N	3/4	19.05	1/2	15.74	1-1/16	26.96	1-1/8	28.58	24.38	21.84	36.57	46.73
SCF - 12-12N	3/4	19.05	3/4	15.74	1-5/16	33.33	1-1/8	28.58	24.38	21.84	38.10	48.26
SCF - 14-12N	7/8	22.22	3/4	18.28	1-5/16	33.33	1-1/4	31.75	25.90	21.84	39.62	49.78
SCF - 16-12N	1	25.40	3/4	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	41.14	53.34
SCF - 16-16N	1	25.40	1	22.35	1-5/8	41.27	1-1/2	38.10	31.24	26.41	50.03	62.23
SCF - 20-20N	1-1/4	31.75	1-1/4	27.68	2-1/8	53.98	1-7/8	47.63	41.14	38.86	52.57	74.67
SCF - 24-24N	1-1/2	38.10	1-1/2	34.03	2-3/8	60.33	2-1/4	57.15	50.03	45.21	56.13	83.31
SCF - 32-32N	2	50.80	2	45.97	2-1/8	73.03	3	76.20	67.56	62.73	64.26	101.60

Female Connector SCF





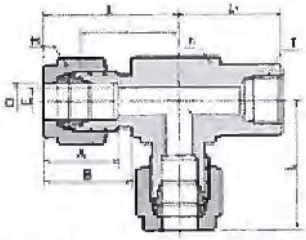
Connects metric tube to male ISO tapered thread

Part No.	Tube O.D. D	T R(PT)	E Min.	Width across flat h	Width across flat H	A	B	l	L
SCF-3M-2R	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
SCF-3M-4R	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
SCF-4M-2R	4	1/8	2.4	14	12	13.7	16.1	23.1	29.7
SCF-6M-2R	6	1/8	4.8	14	14	15.3	17.7	23.9	31.3
SCF-6M-4R	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
SCF-6M-6R	6	3/8	4.8	22	14	15.3	17.7	29.5	36.9
SCF-6M-8R	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
SCF-8M-2R	8	1/8	6.4	15	16	16.2	18.6	24.6	32.1
SCF-8M-4R	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
SCF-8M-6R	8	3/8	6.4	22	16	16.2	18.6	30.2	37.7
SCF-8M-8R	8	1/2	6.4	27	16	16.2	18.6	35.8	43.3
SCF-10M-2R	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
SCF-10M-4R	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
SCF-10M-6R	10	3/8	7.9	22	19	17.2	19.5	31.0	38.6
SCF-10M-8R	10	1/2	7.9	27	19	17.2	19.5	36.6	44.2
SCF-12M-2R	12	1/8	9.3	22	22	22.8	22.0	28.4	38.5
SCF-12M-4R	12	1/4	9.5	22	22	22.8	22.0	30.2	4.03
SCF-12M-6R	12	3/8	9.5	22	22	22.8	22.0	31.0	41.1
SCF-12M-8R	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
SCF-12M-12R	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
SCF-15M-8R	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
SCF-16M-8R	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
SCF-20M-8R	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
SCF-20M-12R	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
SCF-22M-12R	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
SCF-22M-16R	22	1	18.3	41	32	26.0	22.0	47.8	57.9
SCF-25M-12R	25	3/4	21.8	35	36	31.3	26.5	41.1	53.4
SCF-25M-16R	25	1	21.8	41	36	31.3	26.5	50.0	62.3

Korea

Appendix 9. Detail information of S-LOK tube fittings – STRF, Female Run Tee

Female Run Tee
STRF



Connects fractional tube to male NPT thread

Part No.	Tube O.D D		T	E	Width across flat h		H		A	B	I	L	L1
	in	mm	(NPT)	Min.	in	mm	in	mm					
STRF-2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.03	24.63	19.05
STRF-2-4N	1/8	3.17	1/4	2.28	11/16	17.46	7/16	11.11	12.70	15.24	20.82	27.43	22.35
STRF-3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	19.05
STRF-4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
STRF-4-4N	1/4	6.35	1/4	4.82	11/16	17.46	9/16	14.28	15.24	17.78	22.86	29.71	22.35
STRF-4-6N	1/4	6.35	3/8	4.82	13/16	20.64	9/16	14.28	15.24	17.78	24.38	31.75	22.35
STRF-4-8N	1/4	6.35	1/2	4.82	1	25.40	9/16	14.28	15.24	17.78	27.17	34.54	28.44
STRF-5-2N	5/16	7.94	1/8	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70	19.05
STRF-5-4N	5/16	7.94	1/4	6.35	11/16	17.46	5/8	15.87	16.25	18.54	23.11	30.48	22.35
STRF-6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48	19.05
STRF-6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
STRF-6-6N	3/8	9.52	3/8	6.35	13/16	20.64	11/16	17.46	16.76	19.30	25.90	33.27	22.35
STRF-6-8N	3/8	9.52	1/2	7.11	1	25.40	11/16	17.46	16.76	19.30	28.70	36.06	28.44
STRF-8-4N	1/2	12.70	1/4	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STRF-8-6N	1/2	12.70	3/8	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STRF-8-8N	1/2	12.70	1/2	10.41	1	25.40	7/8	22.22	22.86	21.84	29.71	39.87	28.44
STRF-10-6N	5/8	15.87	3/8	12.70	15/16	23.81	1	25.40	24.38	21.84	27.94	38.10	22.35
STRF-10-8N	5/8	15.87	1/2	12.70	1	25.40	1	25.40	24.38	21.84	28.70	38.86	28.44
STRF-12-8N	3/4	19.05	1/2	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	29.71	39.87	28.44
STRF-12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.58	24.38	21.84	34.54	44.70	31.75
STRF-14-12N	7/8	22.22	3/4	18.26	1-1/4	31.75	1-1/4	31.75	31.75	21.84	34.54	44.70	31.75
STRF-16-12N	1	25.40	3/4	22.35	1-27/64	36.12	1-1/2	38.10	38.10	26.41	36.83	49.02	31.75
STRF-16-16N	1	25.40	1	22.35	1-1/16	42.86	1-1/2	38.10	38.10	26.41	41.40	60.29	38.10

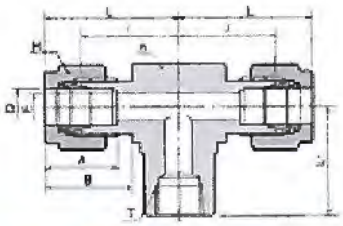
Connects metric tube to male NPT thread

Part No.	Tube O.D D	T (NPT)	E Min.	Width across flat h	H	A	B	I	L	L1
STRF-6M-2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.00
STRF-6M-4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
STRF-6M-6N	6	3/8	4.8	20.64	14	15.3	17.7	24.4	31.7	22.40
STRF-6M-8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.40
STRF-8M-2N	8	1/8	6.4	15.87	16	16.2	18.6	23.1	29.9	19.00
STRF-8M-4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
STRF-8M-6N	8	3/8	6.4	20.64	16	16.2	18.6	25.2	32.4	22.40
STRF-8M-8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.40
STRF-10M-2N	10	1/8	7.9	20.64	19	17.2	19.5	23.9	31.5	19.00
STRF-10M-4N	10	1/4	7.9	20.64	19	17.2	19.5	25.9	33.6	22.40
STRF-10M-6N	10	3/8	7.9	20.64	19	17.2	19.5	25.9	33.6	22.40
STRF-10M-8N	10	1/2	7.9	25.40	19	17.2	19.5	26.2	33.6	28.40
STRF-12M-4N	12	1/4	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STRF-12M-6N	12	3/8	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STRF-12M-8N	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.40
STRF-16M-8N	16	1/2	12.7	25.40	25	24.4	22.0	29.7	40.0	28.40

Korea

Appendix 10. Detail information of S-LOK tube fittings – STBF, Female Branch Tee

Female Branch Tee
STBF



Connects fractional tube to male NPT thread

Part No.	Tube O.D. D		T (NPT)	E Min	Width across flat h		H		A	B	J	L	L1
	in	mm			in	mm	in	mm					
STBF-2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.03	24.38	19.05
STBF-2-4N	1/8	3.17	1/4	2.28	11/16	17.46	7/16	11.11	12.70	15.24	20.82	27.43	22.35
STBF-3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	19.05
STBF-4-2N	1/4	6.35	1/8	4.62	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
STBF-4-4N	1/4	6.35	1/4	4.62	11/16	17.46	9/16	14.28	15.24	17.78	22.35	29.71	22.35
STBF-4-6N	1/4	6.35	3/8	4.62	13/16	20.64	9/16	14.28	15.24	17.78	24.38	31.75	22.35
STBF-4-8N	1/4	6.35	1/2	4.62	1	25.40	9/16	14.28	15.24	17.78	27.17	34.54	28.44
STBF-5-2N	5/16	7.94	1/8	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70	19.05
STBF-5-4N	5/16	7.94	1/4	6.35	11/16	17.46	5/8	15.87	16.25	18.54	23.11	30.48	22.35
STBF-6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48	19.05
STBF-6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
STBF-6-6N	3/8	9.52	3/8	6.35	13/16	20.64	11/16	17.46	16.76	19.30	25.90	33.27	22.35
STBF-6-8N	3/8	9.52	1/2	7.11	1	25.40	11/16	17.46	16.76	19.30	28.70	36.06	28.44
STBF-8-4N	1/2	12.70	1/4	10.41	13/16	20.64	7/8	22.22	22.66	21.84	25.90	36.06	22.35
STBF-8-6N	1/2	12.70	3/8	10.41	13/16	20.64	7/8	22.22	22.86	21.84	25.90	36.06	22.35
STBF-8-8N	1/2	12.70	1/2	10.41	1	25.40	7/8	22.22	22.86	21.84	29.71	39.87	28.44
STBF-10-6N	5/8	15.87	3/8	12.70	15/16	23.81	1	25.40	24.38	21.84	27.94	38.10	22.35
STBF-10-8N	5/8	15.87	1/2	12.70	1	25.40	1	25.40	24.38	21.84	28.70	38.86	28.44
STBF-12-8N	3/4	19.05	1/2	15.74	1-1/16	26.98	1-1/8	28.58	24.38	21.84	29.71	39.87	28.44
STBF-12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.58	24.38	21.84	34.54	44.70	31.75
STBF-14-12N	7/8	22.22	3/4	18.28	1-1/4	31.75	1-1/4	31.75	25.90	21.84	34.54	44.70	31.75
STBF-16-12N	1	25.40	3/4	22.35	1-27/64	36.00	1-1/2	38.10	31.24	26.41	36.83	48.02	31.75
STBF-16-16N	1	25.40	1	22.35	1-11/16	42.86	1-1/2	38.10	31.24	26.41	41.40	53.59	38.10

Connects metric tube to male NPT thread

Part No.	Tube O.D. D	T (NTP)	E Min.	Width across flat h	H	A	B	J	L	L1
STBF-6M-2N	6	1/8	4.8	12.70	14	15.3	17.7	19.8	27.0	19.00
STBF-6M-4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
STBF-6M-6N	6	3/8	4.8	20.64	14	15.3	17.7	24.4	31.7	22.40
STBF-6M-8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.40
STBF-8M-2N	8	1/8	6.4	16.87	16	16.2	18.6	23.1	29.9	19.00
STBF-8M-4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
STBF-8M-6N	8	3/8	6.4	20.64	16	16.2	18.6	25.2	32.4	22.40
STBF-8M-8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.40
STBF-10M-2N	10	1/8	7.9	17.50	19	17.2	19.5	23.9	31.5	19.00
STBF-10M-4N	10	1/4	7.9	20.64	19	17.2	19.5	25.9	33.5	22.40
STBF-10M-6N	10	3/8	7.9	20.64	19	17.2	19.5	25.9	33.5	22.40
STBF-10M-8N	10	1/2	9.5	25.40	19	17.2	19.5	28.2	33.6	22.40
STBF-12M-4N	12	1/4	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STBF-12M-6N	12	3/8	9.5	20.64	22	22.8	22.0	25.9	36.0	22.40
STBF-12M-8N	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.40
STBF-16M-8N	16	1/2	12.7	25.40	25	24.4	22.0	29.7	40.0	28.70

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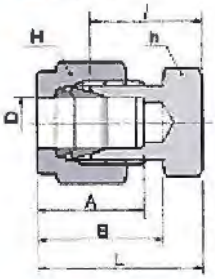
Appendix 11. Detail information of S-LOK tube fittings – SC, Cap

Cap SC

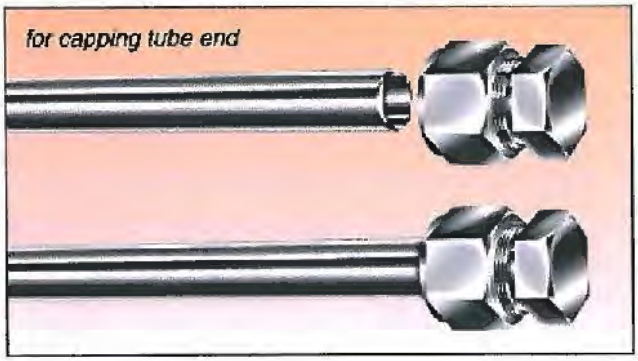


Cap end of fractional tube

Part No.	Tube O.D D		Width across flat h		H		A	B	l	L
	in	mm	in	mm	in	mm				
SC-1	1/16	1.59	5/16	7.93	5/16	7.93	8.63	10.92	11.20	14.18
SC-2	1/8	3.17	7/16	11.11	7/16	11.11	12.70	15.24	13.46	20.06
SC-3	3/16	4.76	7/16	11.11	1/2	12.70	13.71	16.00	14.73	21.33
SC-4	1/4	6.35	1/2	12.70	9/16	14.28	15.24	17.78	16.00	23.26
SC-5	5/16	7.93	9/16	14.28	5/8	15.87	16.25	18.54	17.01	24.38
SC-6	3/8	9.52	5/8	15.87	11/16	17.46	16.76	19.30	18.28	25.65
SC-8	1/2	12.70	13/16	20.63	7/8	22.22	22.86	21.84	19.05	29.21
SC-10	5/8	15.87	15/16	23.81	1	25.40	24.38	21.84	19.81	29.97
SC-12	3/4	19.05	1-1/16	26.98	1-1/8	28.57	24.38	21.84	21.33	31.49
SC-14	7/8	22.22	1-3/16	30.16	1-1/4	31.75	25.90	21.84	23.87	34.03
SC-16	1	25.40	1-3/8	34.92	1-1/2	38.10	31.24	26.41	26.16	38.35
SC-20	1-1/4	31.75	1-3/4	44.45	1-7/8	47.63	41.14	38.86	31.24	53.34
SC-24	1-1/2	38.10	2-1/8	53.98	2-1/4	57.15	50.15	45.21	37.33	64.51
SC-32	2	50.80	2-3/4	69.85	3	76.20	67.56	62.73	49.27	86.61

Installation Instructions

1. Insert the tube end into the Cap
2. With a wrench, 1-1/4 turns from the finger-tight position, (3/4 turn for 1/8", 3/16" 3mm and 4mm)



Cap end of metric tube

Part No.	Tube O.D. D	Width across flat h	H	A	B	l	L
SC-2M	2	12	12	12.9	15.3	13.5	20.1
SC-3M	3	12	12	12.9	15.3	13.5	20.1
SC-4M	4	12	12	13.7	16.1	14.7	21.3
SC-6M	6	14	14	15.3	17.7	15.7	23.1
SC-8M	8	15	16	16.2	18.6	17.0	24.5
SC-10M	10	16	19	17.2	19.5	19.0	26.6
SC-12M	12	22	22	22.6	22.0	19.0	29.1
SC-15M	15	24	25	24.4	22.0	19.8	29.9
SC-16M	16	24	25	24.4	22.0	19.8	29.9
SC-18M	18	27	30	24.4	22.0	21.3	31.4
SC-20M	20	30	32	26.0	22.0	23.9	34.0
SC-22M	22	30	32	26.0	22.0	23.9	34.0
SC-25M	25	35	38	31.3	26.5	26.2	38.5
SC-28M	28	41	46	36.6	36.6	27.7	48.5
SC-32M	32	46	50	42.0	41.6	32.8	55.8
SC-38M	38	55	60	49.4	47.9	37.8	65.4