

SURFACE VEHICLE STANDARD

SAE J1754-2

REV. DEC2001

400 Commonwealth Drive, Warrendale, PA 15096-0001

Issued 1996-06 Revised 2001-12

Superseding J1754-2 JUN1996

(R) Hose Assemblies, Rubber, Hydraulic, Steel Wire Reinforced—Part 2: Ordering Information

1. Scope—This SAE Standard covers ordering information for steel wire reinforced rubber hose assemblies using connectors specified in SAE J516 for use in hydraulic systems using petroleum based hydraulic fluids with maximum working pressures of 1.7 to 42 MPa. See SAE J1754-2, Table 8 for hose operating temperature ranges and identification codes.

NOTE— Working pressure is defined as maximum system pressure.

- 2. References
- **2.1 Applicable Publications**—The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of the publications shall apply.
- 2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J343—Test and Procedures Hydraulic Hose Assemblies & Hose

SAE J516—Hvdraulic Hose Fittings

SAE J517—Hydraulic Hose

SAE J846—Coding Systems for Identification of Fluid Conductors & Connectors

SAE J1176—External Leakage Classifications for Hydraulic Systems

SAE J1273—Recommended Practices for Hydraulic Hose Assemblies

SAE J1405—Optional Impulse Test Procedures for Hydraulic Hose Assemblies

SAEJ1754-1—Hose Assemblies, Rubber, Hydraulic, Steel Wire Reinforced—Part 1: Procurement Document

2.1.2 ASTM Publications—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 117—Standard Test Method of Salt Spray (Fog) Testing

ASTM D 380—Methods of Testing Rubber Hose

ASTM D_471—Test Method for Rubber Property - Effect of Liquids

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2.1.3 ISO Publications—Available from ANSI, 11 West 42nd Street, New York, NY 10036.

ISO3448—Industrial liquid lubricants—ISO viscosity classification

ISO4397—Fluid power systems and components—Connectors and associated components—Nominal outside diameters of tubes and nominal inside diameters of hoses

ISO4406—Hydraulic fluid power—Fluids—Method of coding level of contamination by solid particles

ISO12151-1—Connections for hydraulic fluid power and general use—Hose fittings—Part 1: Hose fittings with ISO 8434-3 O-Ring Face Seal Ends

ISO12151-2—Connections for hydraulic fluid power and general use—Hose fittings—Part 2: Hose fittings with ISO 8434-1 24° cone ends

ISO12151-3—Connections for hydraulic fluid power and general use—Hose fittings—Part 3: Hose fittings with ISO 6162 flange ends

ISO12151-4—Connections for hydraulic fluid power and general use—Hose fittings—Part 4: Hose fittings with ISO 6149 metric stud ends

ISO12151-5—Connections for hydraulic fluid power and general use—Hose fittings—Part 5: Hose fittings with ISO 8434-2 37° flare ends

ISO12151-6—Connections for hydraulic fluid power and general use—Hose fittings—Part 6: Hose fittings with ISO 8434-6 60° cone ends

3. Requirements

3.1 Hose Assembly Identification—Hose assemblies shall be identified using Tables 1 to 7 and either Appendix A or Appendix B.

3.2 Construction and Performance—Hose assemblies shall be qualified in accordance with the requirements in SAE J1754-1. Users of this document are advised to control source approval, as required.

TABLE 1—MAXIMUM OPERATING PRESSURE RANGE RATING CODES

TABLES ⁽¹⁾	1	2	310	4	5	6	7	8	9	10	
PRESSURE RATING - MPa (1)	1.7	2.8	C7	14	17.5	21	24.5	28	35	42	(2)
LETTER DESIGNATION	С	D C	E	F	G	Н	J	K	M	N	Χ

- 1. See SAE J2174-1 Tables 1 to 10 for outside diameter, proof pressure, burst pressure, and minimum bend radius.
- 2. See drawing for operating pressure rating

TABLE 2—HOSE COVER TYPE CODES

Standard synthetic rubber cover	Intermediate (medium abrasion) cover	High abrasion cover
1(1)	2 ⁽¹⁾	3 ⁽¹⁾

1. Hose cover type material per purchasers approved material specification.

TABLE 3A—HOSE SIZE IDENTIFICATION CODES

SAE HOSE DASH SIZE ⁽¹⁾	03	04	05	06	80	10	12	_	16	20	24	32	40
ISO HOSE SIZE (2)	5	6.3	8	10	12.5	16	19		25	31.5	38	51	63
LETTER DESIGNATION	D	Ε	F	G	Н	J	K	_	Ν	Р	R	Т	U

- 1. Hose dash size is based on inches, with each dash size equal to 1/16 inch.
- 2. ISO hose size is based on the equivalent SAE J517 inch hose sizes per ISO 4397.

NOTE— Hose size columns in Table 3A line up with the appropriate standard connector end size in Table 3B.

TABLE 3B—CONNECTOR SIZE IDENTIFICATION CODES

SAE CONNECTOR DASH SIZE (1)	CODE	03	04	05	06	08	10	12	14	16	20	24	32	40
ISO 12151-1 CONNECTOR SIZE ⁽²⁾	S		6	8	10	12	16	20	X/	25	30	38		
ISO 12151-2 CONNECTOR SIZE-L (3)	L		6	8	10	12	15	18	22	28	35	42		
ISO 12151-2 CONNECTOR SIZE-S (4)	S		8	10	12	12	16	20	25	30	38			
ISO 12151-3 CONNECTOR SIZE-L (3)	L						13)	19	25	32	38	51	
ISO 12151-3 CONNECTOR SIZE-S (4)	S						1 3		19	25	32	38	51	
ISO 12151-4 CONNECTOR SIZE-L (3)	L			6	8	10	12	16	20	25	30	38	51	
ISO 12151-4 CONNECTOR SIZE-S (4)	S			6	8	10	12	16	20	25	30	38	51	
ISO 12151-5 CONNECTOR SIZE ⁽⁵⁾	L			6	84	10	12	16	20	25	32	38	50	
ISO 12151-6 CONNECTOR SIZE ⁽⁵⁾	L		2	4	6	8	10	12	16	20	24	32		
LETTER DESIGNATION		D	Е	F	G	Н	J	K	М	Ν	Р	R	Т	U

- 1. Connector dash size is based on inch tubing, with each dash size equal to 1/16 inch.
- 2. ISO connector size is based on ISO 12151-1 with S (Heavy-duty series) only.
- 3. ISO connector size is based on ISO 12151-2, 3, and 4 with L (Light duty series).
- 4. ISO connector size is based on ISO 12151-2, 3 and 4 with S (Heavy duty series).
- 5. ISO connector size is based on ISO 12151-5 & 6 with L (Light duty series) only.

NOTE 1—In Appendix A, B, and Figure 1 the hose assembly end connection description and shape codes are found in SAE J846, Table 6B and Table 7.

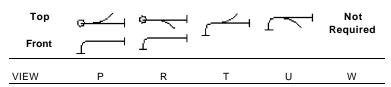
NOTE 2—In Appendix B drawing, the end sizes will need to be filled in the blank space, due to the different end sizes in each of the ISO 12151 standards for each letter code. Example: If a 12151-1 end connection with a 13/16-16 UN thread is used, the size and code would be 12 / H.

TABLE 4—SLEEVE CODES⁽¹⁾

Code	Description	
Α	Flat Armor Guard	
В	Round Spring Guard	
С	Polyurethane Sleeve	
D	Polyamide Sleeve	
Е	Fire Sleeve	
W	None	
Х	See Drawing	

 Full length sleeve over entire hose is assumed on hose assembly. If partial length sleeve is required on hose assembly, place an "X" to see drawing.

TABLE 5—HOSE CURVATURE ORIENTATION CODES⁽¹⁾



^{1.} Hose curvature orientation to be used when required for ease of assembly.

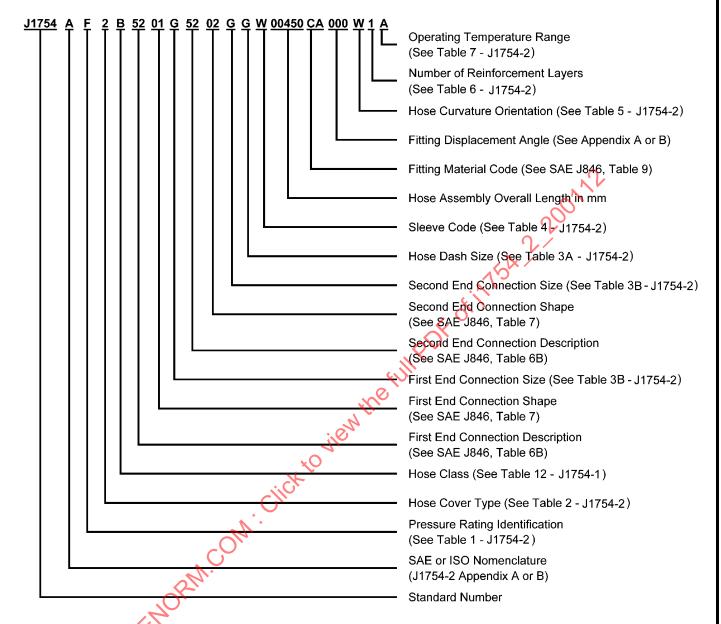
TABLE 6—NUMBER O	F WIRE REINFORCEI	MENT LAYERS CODE
Code	Description	
W	Not Specified	<u> </u>
1	One Wire Braid	
2	Two Wire Braid	$\mathcal{A}_{\mathcal{O}}$
4	Four Wire Spiral	
6	Six Wire Spiral	$\langle \chi_{j} \rangle$
X	See Drawing	<u> </u>

TABLE 7—HOSE OPERATING TEMPERATUE RANGE CODES

_		
	Code	Temperatures
·	А	-40°C minimum to +100 °C maximum
	В	-40°C minimum to +121 °C maximum
_	X	See drawing for hose temperature rating
ntification Nur	mbers	Click
E—See Figure	e 1.	•
_	$-O_M$	
	5/11.	
,0	C	
AEMO		
CAL		
2		

Part Identification Numbers 3.3

EXAMPLE—See Figure 1.



Example of Hose Assembly Part Number: J1754AF2B5201G5202GGW00450CA000W1A

NOTE 1: "X" To be used for identifying special conditions that requires a drawing.

NOTE 2: "W" To be used for identifying all alpha code letters not required in the coding identification.

NOTE 3: "0" To be used for identifying all numerical numbers not used in the coding identification.

FIGURE 1—EXAMPLE OF HOSE ASSEMBLY PART NUMBER

47E4 0	D - 1 - 1	DEC2001
1/54=7	RAVISAN	1) = (. 2()() 1

4	Notes

Marginal Indicia—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left

PREPARED BY THE SAE FLUID CONDUCTOR AND CONNECTORS TECHNICAL COMMITTEE SC2—

APPENDIX A

SAE HOSE ASSEMBLY DRAWING

nd 1	Hose	Assembly	Overall Le	ength	mm —	→	~	End 2
Connector 1 Information	Cov	er Type:	□ 1. □	☐ 2, or ☐	3 C	onnector	2 Information	on
ex: Inch	100000	Hose C		SAE Hose		Inch		
nd: Male Female		☐ Cla		ash Size/Co			Female	ก
Straight Angle	16	☐ Cla		□ -03/E			t 🗆 Apgle	
op: Short: Medium: Lo	ong: []	00000000	orking	□ -04/E			Medium:	Long: \Box
	sh Size/Code		-		50	AE J516		ash Size/Cod
ose Connector End Type:	□-03/D		MPa / C	□ -06/G			nd Type:	□-03 / D
O-Ring Face Seal	□-04/E	_	MPa / D	□ -08/H		ng Face Se		□-04/E
Code 61 Flange	□-05/F	-	MPa / E	□ -10/J		61 Flange		□-05/F
Code 62 Flange	□-06/G	□ 14	MPa / F	☐ -12 / K		62 Flange		□ -06 / G
JIC (37°) Flare	□ -08 / H	17.	5 MPa / G	☐ -16/N	ا ال	37°) Flare		☐ -08 / H
NPTF Pipe	□-10/J	21	MPa/H	☐ -20 / P				☐ -10 / J
Male O-Ring Stud-Light Duty	☐-12 / K	24.	5 MPa / J	☐ -24/F	Male Male	O-Ring St	ud-Light Duty	☐ -12 / K
Male O-Ring Stud-Heavy Duty	/ □-14/M	□ 28	MPa / K	☐ -32/T	☐ Male	O-Ring St	ud-Heavy Dut	ty -14/N
OTHER	☐ -16 / N	35	MPa / M	☐ -40/	У □ отн	ER		☐ -16 / N
	☐ -20 / P	42	MPa / N		SZ GAZDARADI			☐ -20 / P
	☐ -24 / R		MPa / X	W.				☐ -24 / F
	☐ -32 / T			. e `				☐ -32 / T
	☐-40/U				er Code: 🔲 1			☐ -40 / U
ose Assembly Operating Tem	perature Ran	ge (Code): 🔲 -40°1	to +100°C (A), 🔲 -40° to +	121°C (B)	or	°C (X).
Displacement Angle:	_ ± 3° A		re Type / C		Type of Sleeve	Full Length	Partial Length	
	_ ± 3° A	Sleey					500000000000000000000000000000000000000	Connecto
		Slee	re Type / C	Guard / A		Length	Length	Connecto
180°] [] []	Sleen Steek	ve Type / C lat Armor C	Guard / A ard / B		Length	Length mm	Connecto
180°] ·	Steel Round Round Polyam	lat Armor C Spring Gua nide Sleeve Flat Armor	Guard / A ard / B		Length	Length mm mm	Connecto
270°	90°.	Sleen Steel Round Polyam	lat Armor C Spring Gua nide Sleeve Flat Armor	Guard / A ard / B		Length	Length mm mm	Connecto
270°	1 . Moe	Steel Round Round Polyam	let Armor C Spring Gua spring Sleeve Flat Armor seeve / E	Guard / A ard / B		Length	Length mm mm mm mm	Connecto
270° NBAR	1 . Moe	Steel F Steel F Round Polyam Plastic Fire Slo	e Type / Clat Armor C Spring Gua hide Sleeve Flat Armor eeve / E X:	Guard / A ard / B a / C Guard / D ss Requirem	Sleeve	Length	Length mm	
270° NBAR	1 . Moe	Steel F Steel F Round Polyam Plastic Fire Slo	e Type / Clat Armor C Spring Gua hide Sleeve Flat Armor eeve / E X:	Guard / A ard / B a / C Guard / D ss Requirem	Sleeve	Length	Length mm	Connecto
270° NBAR NBAR	9000.	Steel F Steel F Round Polyam Plastic Fire Slo	Spring Guardide Sleeve Flat Armor eeve / E X: Inside Lines	Guard / A ard / B a / C Guard / D ss Requirem	Sleeve	Length	Length mm	Connecto
270° NBAR END 0° Front connector down	9000.	Steel Round Polyam Plastic Fire Sld	Spring Guardide Sleeve Flat Armor eeve / E X: Inside Lines	Guard / A ard / B a / C Guard / D ss Requirem Area: eight:	Sleeve	Length	Length mm	Connecto
270° NBAR END O° Front connector down Point assembly away from you	9000	Steel Round Polyam Plastic Fire Sld	Spring Guaride Sleeve Flat Armor eeve / E X: Inside Max We	Guard / A ard / B a / C Guard / D ss Requirem Area: eight:	Sleeve	Length	Length mm	Connecto
Point assembly away from you. Measure counter-clockwise.	9000	Steel Round Polyam Plastic Fire Sld	Spring Guanide Sleeve Flat Armor eeve / E X: Cleanlines Inside Max We ax Particle	Guard / A ard / B a / C Guard / D ss Requirem Area: eight: Size:	Sleeve	Length Control of Code of Cod	Length mm mm mm mm mm mm NUMBER 19	Connecto
Point assembly away from you. Measure counter-clockwise. Discounter-clockwise. Top G G G	9000	Steel Round Polyam Plastic Fire Sld	Spring Guaride Sleeve Flat Armor eeve / E X: Cleanlines Max We ax Particle	Guard / A ard / B a / C Guard / D ss Requirem Area: eight: Size:	Sleeve	Length Control of Code No. 2 X Available Code No. 2 Available Code No. 2 Available Code No. 2 Co	Lengthmmmmmmmm NUMBER 19	Connecto
Point assembly away from you. Measure counter-clockwise. Discrete Curvature Orientation: Top Front	900000000000000000000000000000000000000	Steel Steel Round Polyam Plastic Fire Sle	Spring Gua aide Sleeve Flat Armor seeve / E X: Cleanlines Inside Max Wo ax Particle	Guard / A ard / B a / C Guard / D ss Requirem Area: eight: Size:	Sleeve	Length Control of Code No. 2 X Available Code No. 2 Available Code No. 2 Available Code No. 2 Co	Length mm mm mm mm mm mm NUMBER 19	Connecto
Point assembly away from you. Measure counter-clockwise. Discrete Curvature Orientation: Top Front	9000	Steel Round Polyam Plastic Fire Sld	Spring Guanide Sleeve Flat Armor eeve / E X: Cleanlines Inside Max We ax Particle	Guard / A ard / B a / C Guard / D ss Requirem Area: eight: Size:	Sleeve	Length Company of the control of th	Length mm mm mm mm mm mm NUMBER 19	Connecto

FIGURE A1—SAE HOSE ASSEMBLY DRAWING

APPENDIX B

ISO HOSE ASSEMBLY DRAWING

nd 1	~	4	— Hose	Assembly	y Overall Le	ength	mm —	—▶	~	End 2
Conne	ctor 1 Info	rmation	Co	ver Type	: 🗆 1, 🗆	2, or 🗌	3 Cc	onnector	2 Informatio	n
ex: M	letric			Hose C		ISO Metric		Metric		
	lale Fen	nale 🗆		<u> </u>		ose Size/Co	(i) 1,175,576		Female [) .
	traight	2232	0	□ Cla	iss B	□ 5/D		100	t 🗆 Angle	V
	hort: Med	_	na: []		orking	☐ 6.3/E	Dron		Medun:	Long:
	12151	nom. 🗀 cc	ing. LI		re / Code:	□ 8/F	Біор.	ISO 1215		Long.
remani (179 Fi	nector End	Type	Size/Code	· <u> </u>	MPa/C	□ 10/G	Hose		r End Type:	Size/Cod
	Face Seal -		☐ /E		MPa/D	12.5/			Seal - Code S	
	24° Cone -		□ /F		MPa/E	☐ 16/J	1000 Total		one - Code L	□ /F
	24° Cone -		□ /G		MPa/F	☐ 19/K			Cone - Code S	H-70
	Flange - Co		H /H	_	5 MPa / G	☐ 25/N			je - Code L	<u>=</u> /
	Flange - Co		<u> </u>	-	MPa/H	31.5/			e - Code S	<u> </u>
	Stud End -		□ /K	-	.5 MPa / J	☐ 38/R			End - Code L	H /
	Stud End -		□ /M	-	MPa/K	☐ 51/T			End - Code S	H-7
	37° Flare - (□ /N		MPa/M	☐ 63 / W			lare - Code L	D /N
	60° Cone -		□ /P	-	MPa / N			383 - E916	one - Code L	□ /F
OTHER		0000 E	□ /R	_	MPa/X				0.10	□ /F
			□ /T			NO.				0_/1
				Reinforcem	nent Laver	Code: □1.	2, 4 or	Π6		
ose Asse	embly Open	ating Tem). 40° to +		or	_°C (X).
		lo:	_ ± 3°		and the		5.04.00.00.00.40	E OF	D	
Displace	3 to 1 to			Accessori			Type of	Full	Partial	From End C
Displac	180°		0	Sleeve	e Type / Co		Type of Sleeve	Length	Length	
Displac	3 to 1 to	_	_ 13	Sleeve						
Displac	3 to 1 to	\		Sleeve Steel	e Type / Co	Guard / A		Length	Length	
Displac	3 to 1 to	ANGLE		Sleeve Steel E	at Armor G Spring Gua	Suard / A ard / B		Length	Length mm mm	
,	3 to 1 to	\		Sleeve Steel E	at Armor C	Suard / A ard / B		Length	Length mm	
Displace	3 to 1 to	\		Sleeve Steel Polyan	at Armor G Spring Gua	Guard / A ard / B / C		Length	Length mm mm	Connecto
,	180°	\		Sleeve Steel Polyan	a Type / Co Lat Armor G Spring Gua nide Sleeve	Guard / A ard / B / C		Length	Length mm mm mm	
,	3 to 1 to	\		Sleeve Steel Polyan Plastic	e Type / Co let Armor G Spring Gua nide Sleeve : Flat Armor leeve / E	Guard / A ard / B / C		Length	Length mm mm mm mm mm	
,	180°	\		Sleeve Steel Polyand Polyand Plastic Fire SI	a Type / Co lat Armor Co Spring Gua nide Sleeve Flat Armor	Guard / A ard / B / C Guard / D	Sleeve	Length	Length mm mm mm mm mm mm	Connecto
270°	NEAR END	ANGLE		Sleeve Steel Polyand Polyand Plastic Fire SI	a Type / Co lat Armor G lat Armor G lat Spring Gua nide Sleeve : Flat Armor leeve / E / X:	Guard / A ard / B / C Guard / D	Sleeve	Length	Length mm mm mm mm mm mm mm	Connecto
270°	NEAR END 0°	ANGLE	90° .	Sleeve Steel Polyand Polyand Plastic Fire SI	a Type / Co lat Armor G lat Armor G lat Spring Gua nide Sleeve : Flat Armor leeve / E / X:	Guard / A ard / B / C Guard / D ss Requirem Area:	Sleeve	Length	Length mm mm mm mm mm mm mm	Connecto
270° Front cor	NEAR END O°	ANGLE PAGE	90° .	Sleeve Steel Polyan Polyan Plastic Fire SI	a Type / Co lat Armor G lat Armor lateve / E / X:	Guard / A ard / B / C Guard / D ss Requirem Area: eight:	Sleeve	Length	Length mm mm mm mm mm mm mm MUMBER 19 /	Connecto
270° Front cor Point ass Measure	NEAR END 0° nnector downsembly awa	ANGLE drom you. ckwise.	90° .	Sleeve Steel Polyan Polyan Plastic Fire SI	a Type / Co lat Armor G lat Spring Gua nide Sleeve : Flat Armor leeve / E / X:	Guard / A ard / B / C Guard / D ss Requirem Area: eight:	Sleeve TT nents: ISO 44	Length	Length mm mm mm mm mm mm mm	Connecto
270° Front cor Point ass Measure	NEAR END 0° nnector downsembly away a counter do	ANGLE Arrom you. ckwise.	90° .	Sleeve Steel Polyan Polyan Plastic Fire SI	a Type / Co lat Armor G lat Spring Gua nide Sleeve : Flat Armor leeve / E / X:	Guard / A ard / B / C Guard / D ss Requirem Area: eight:	Sleeve TT nents: ISO 44	Length	Length mm mm mm mm mm NUMBER 19 /	Connecto
270° Front cor Point ass Measure	NEAR END 0° nnector downsembly away a counter do	ANGLE drom you. ckwise.	90° .	Sleeve Steel Polyan Polyan Plastic Fire SI	a Type / Co lat Armor G lat Ar	Guard / A ard / B / C Guard / D ss Requirem Area: eight: Size:	Sleeve Sleeve The first state of the state	Length Control Cont	Length mm mm mm mm mm NUMBER 19 /	Connecto
270° Front cor Point ass Measure	NEAR END 0° nnector downsembly away a counter do	ANGLE Arrom you. ckwise.	90° .	Sleeve Steel Polyan Polyan Plastic Fire SI	a Type / Co lat Armor G lat Spring Gua nide Sleeve : Flat Armor leeve / E / X:	Guard / A ard / B / C Guard / D ss Requirem Area: eight: Size:	Sleeve Sleeve The first Administration of the Administration of	Length	Length mm mm mm mm mm NUMBER 19 /	Connecto
270° Front cor Point ass Measure tose Curv Top	NEAR END 0° nnector down sembly away counter down atture Orien	ANGLE Arrom you. ckwise.	90° .	Sleeve Steel Polyan Polyan Plastic Fire SI	a Type / Co lat Armor G lat Ar	Guard / A ard / B / C Guard / D ss Requirem Area: eight: Size:	Sleeve Sleeve The first state of the state	Length	Length mm mm mm mm mm NUMBER 19 /	Connecto
Front cor Point ass Measure lose Curv Top Front VIEW	NEAR END 0° nnector down sembly away counter down atture Orien	ANGLE PROPERTY OF THE PROPERTY	90°	Sleeve Steel Steel Polyan Plastic Other	a Type / Co lat Armor Co lat Spring Gua nide Sleeve Flat Armor leeve / E / X:	Guard / A ard / B / C Guard / D ss Requirem Area: eight: Size:	Sleeve Sleeve The first Administration of the Administration of	Length Control of the control of th	Length mm mm mm mm mm NUMBER 19 /	Connecto

FIGURE B1—ISO HOSE ASSEMBLY DRAWING