

- NOTE:
- REMOVE ALL BURRS AND EDGES.
 - BODY & BACK NUT SHOULD BE ZINC PLATED (10 μ)/PASSIVATED. $\triangle 1$
 - ALL DIMENSIONS ARE IN mm EXCEPT OTHERWISE STATED.
 - ISO 7/1 & ISO 228/1 FOR TAPER AND PARALLEL THREADS RESPECTIVELY.
 - DIMENSIONS A,C,D ARE TYPICAL FINGER-TIGHT.
 - GENERAL TOLERANCES ON DIMENSIONS:
(a) BELOW 1" $+0.2$
-0
(b) ABOVE 1" $+0.04$
-0 EXCEPT 'T'
 - THIS FITTING IS TO BE SWAGED ON SS TUBES (Gr.304) OF HARDNESS 90 HRB MAX.
 - ALL THE PARTS OF THE FITTINGS SHOULD BE CONCENTRIC AND BE CAPABLE OF SELF-ALIGNMENT WHEN ASSEMBLED WITH PROPER SIZE TUBING.
 - NUTS & FERRULES OF PERTICULAR SIZE SHALL BE INTER CHANGEABLE FOR EACH TYPE.
 - USED FOR LOCO WAG-9, WAP-7 & WAP-5.


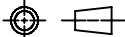
ORIGINAL SUPPLIER - SWAGELOC/USA

SL. NO.	T TUBE O.D.	A	C	D	E MINIMUM OPENING	F WRENCH PAD (HEX. FLAT)	G HEX. FLAT	H
1	10 mm	1.77"	0.76"	0.66"	0.28"	5/8"	11/16"	1.19"
2	1/2"	2.02"	0.86"	0.90"	0.41"	13/16"	7/8"	1.22"
3	1"	2.55"	1.04"	1.23"	0.88"	1-3/8"	1-1/2"	1.59"
4	1-1/2"	4.25"	1.78"	1.97"	1.34"	2-1/8"	2-1/4"	2.11"

4			BACK FERRULE	2	STAINLESS STEEL	GR. 316	
3			FRONT FERRULE	2	STAINLESS STEEL	GR. 316	
2			BACK NUT	2	CARBON STEEL	ASTM A108	
1			BODY	1	CARBON STEEL	ASTM A108	
निर्देश संख्या	लागत एवं वितरण संख्या	अंग आरेखण संख्या	वर्णन	मात्रा	पदार्थ	विशिष्ट	प्रति भार कि. ग्रा.
REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.

धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पदांक GRADE NO.	स1 N1	स2 N2	स3 N3	स4 N4	स5 N5	स6 N6	स7 N7	स8 N8	स9 N9	स10 N10	स11 N11	स12 N12
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
	Ra μ m	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

5		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	30-07-20
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित DATED INITIAL

अधिकृत DGN				चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA			
जॉचा व.अ.अ. CHD SSE				SUBHANK AR KUMBHAKAR 13-05-19 14:52:57			
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		Pradeep Khatana 13-05-19 14:52:57		पदार्थ MATL		प्रति भार कि. ग्रा. WT. EACH IN KG	
अनुमोदित उ.यु.वि.अ. APPROVED DYCEE		ARUP KUMAR MITRA 13-05-19 14:52:57		विशिष्ट SPECN			
दिनांक DATE		23-09-20		वर्णन DESCRIPTION		UNION SPECIAL	
रैखिक अनुपात SCALE		2:1		आरेखण संख्या DRAWING NO.		1209-18.306-028	
संदर्भ / REF. 182-00532 ALT- 0				परिवर्तन संख्या ALTERATION NO.		5	पृष्ठ SHEET
						1 OF 1	A3

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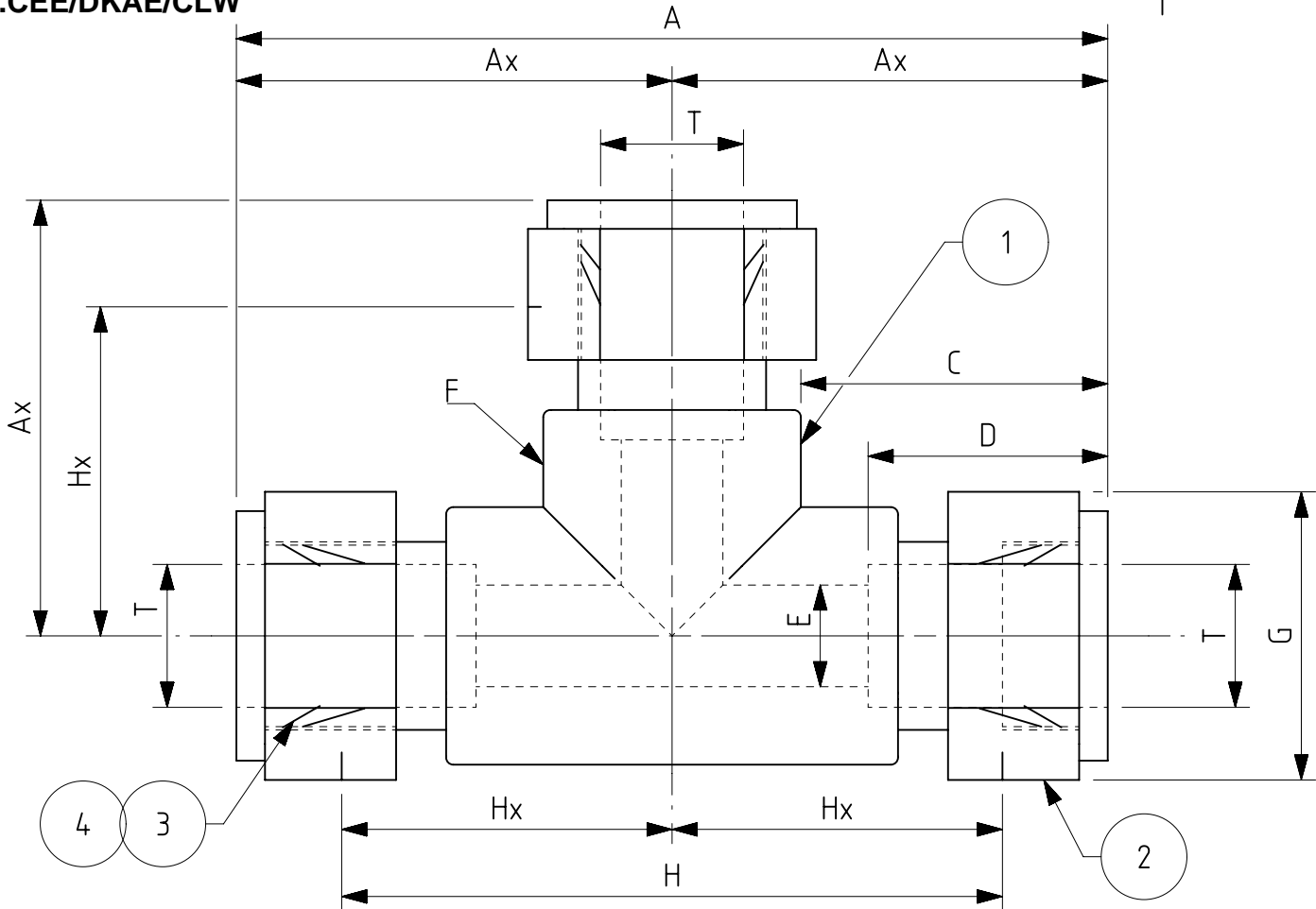
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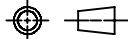


- NOTES:
1. REMOVE ALL BURRS & SHARP EDGES.
 2. BODY & BACKNUT SHOULD BE ZINC PLATED (10U)/PASSIVATED.
 3. ALL DIMENSIONS ARE IN mm EXCEPT OTHERWISE STATED.
 4. GENERAL TOLERANCES ON DIMENSIONS:
(a) BELOW 1":
+0.02
-0
(b) ABOVE 1":
+0.04
-0
EXCEPT 'T'
 5. DIMENSIONS A, C, D, Ax ARE TYPICAL FINGER TIGHT.
 6. ISO 71 & ISO 228/1 FOR TAPER & PARALLEL THREADS RESPECTIVELY.
 7. UNION TEES ARE TO BE MACHINED FROM FORGED BLANKS AND NOT TO BE CAST.
 8. THIS FITTING IS TO BE SWAGED ON S.S TUBES (Gr.304) OF HARDNESS 90 HRS MAX.
 9. ALL THE PARTS OF THE FITTING SHOULD BE CONCENTRIC AND BE CAPABLE OF SELF-ALIGNMENT WHEN ASSEMBLED WITH PROPER SIZE TUBING.
 - 10.NUTS & FERRULES OF A PARTICULAR SIZE SHALL BE INTERCHANGABLE FOR EACH TYPE.

ORIGINAL
SUPPLIER: SWAGELOK / USA
USED FOR LOCO WAG-9, WAP-7 & WAP-5

SL. No.	T TUBE OD	A	Ax	C	D	E MINIMUM OPENING	F WRENCH PAD	G HEX. FLAT	H (BODY)	Hx
1	10 mm	2.40"	1.20"	0.76"	0.66"	0.28"	5/8"	11/16"	1.82"	0.91"
2	1"	3.86"	1.93"	1.04"	1.23"	0.88"	1-3/8"	1-1/2"	2.90"	1.45"
3	1-1/2"	6.14"	3.07"	1.78"	1.97"	1.34"	2"	2-1/4"	4.00"	2.00"
4	1/2"		34.9			10.3 mm	22 mm	22 mm	49.2 mm	24.6 mm
5	1" x 1/2" x 1"	3.86"	1.93"	1.04"	1.23"	0.83"	1-3/8"	1-1/2"	2.9"	1.45"

4			BACK FERRULE	3	S,ST'L	GR.316	-
3			FRONT FERRULE	3	S,ST'L	GR.316	-
2			BACK NUT	3	CARBON ST	ASTM A108	-
1			BODY	1	CARBON ST	ASTM A108	-
निर्देश संख्या	लागत एवं वितरण संख्या	अंग आरेखण संख्या	वर्णन	मात्रा	पदार्थ	विशिष्टि	प्रति भार कि. ग्रा.
REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.

अधिकृतियत DGN		चिततरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA					
जौचा व.अ.अ. CHD SSE	SUBHANK AR KUMBHAKAR <small>Digitally signed by SUBHANK AR KUMBHAKAR DN: cn=SUBHANK AR KUMBHAKAR, o=INDIAN RAILWAYS, ou=CHITTARANJAN LOCOMOTIVE WORKS, email=SUBHANK.AR@irco il.co.in, c=IN</small>	पदार्थ MATL			प्रति भार कि. ग्रा. WT. EACH IN KG		
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	Pradeep Prasad Khatana <small>Digitally signed by Pradeep Prasad Khatana DN: cn=Pradeep Prasad Khatana, o=INDIAN RAILWAYS, ou=CHITTARANJAN LOCOMOTIVE WORKS, email=PRDEEP.PK@irco il.co.in, c=IN</small>	विशिष्टि SPECN			वर्णन UNION TEE		
अनुमोदित च.यु.वि.अ. APPROVED DYCEE	ARUP KUMAR MITRA <small>Digitally signed by ARUP KUMAR MITRA DN: cn=ARUP KUMAR MITRA, o=INDIAN RAILWAYS, ou=CHITTARANJAN LOCOMOTIVE WORKS, email=ARUP.KM@irco il.co.in, c=IN</small>	DESCRIPTION					
दिनांक DATE	23-09-20	आरेखण संख्या DRAWING NO.					
रैखिक अनुपात SCALE	2:1	1209-18.306-029					
संदर्भ / REF. 182-00531 ALT- 0			परिवर्तन संख्या ALTERATION NO.	7	पुर्ण SHEET	1 OF 1	A3

धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं.:2553 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सद्य — सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पदांक GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12
सतह — रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
	Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

7		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	31-07-20
6	DY. CEE PROJ./CON	SL. NO. 4 AND 5 ADDED FOR CCB BRAKE SYSTEM.	17-01-14
5	DY.CEE P./CON	UNIT MM ADDED	15-03-13
4	DY.CEE/D-I	SL. NO. 1 TUBE O/D 10 WAS 3/8"	14-02-12
3	AME/D&D	WAP-5 CLASS OF LOCO ADDED.	15-01-03
2	AME/D&D	NOTE 3 TO 10 ADDED.	07-09-01
1	AME/D&D	PASSIVATED ADDED.	19-08-98
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL

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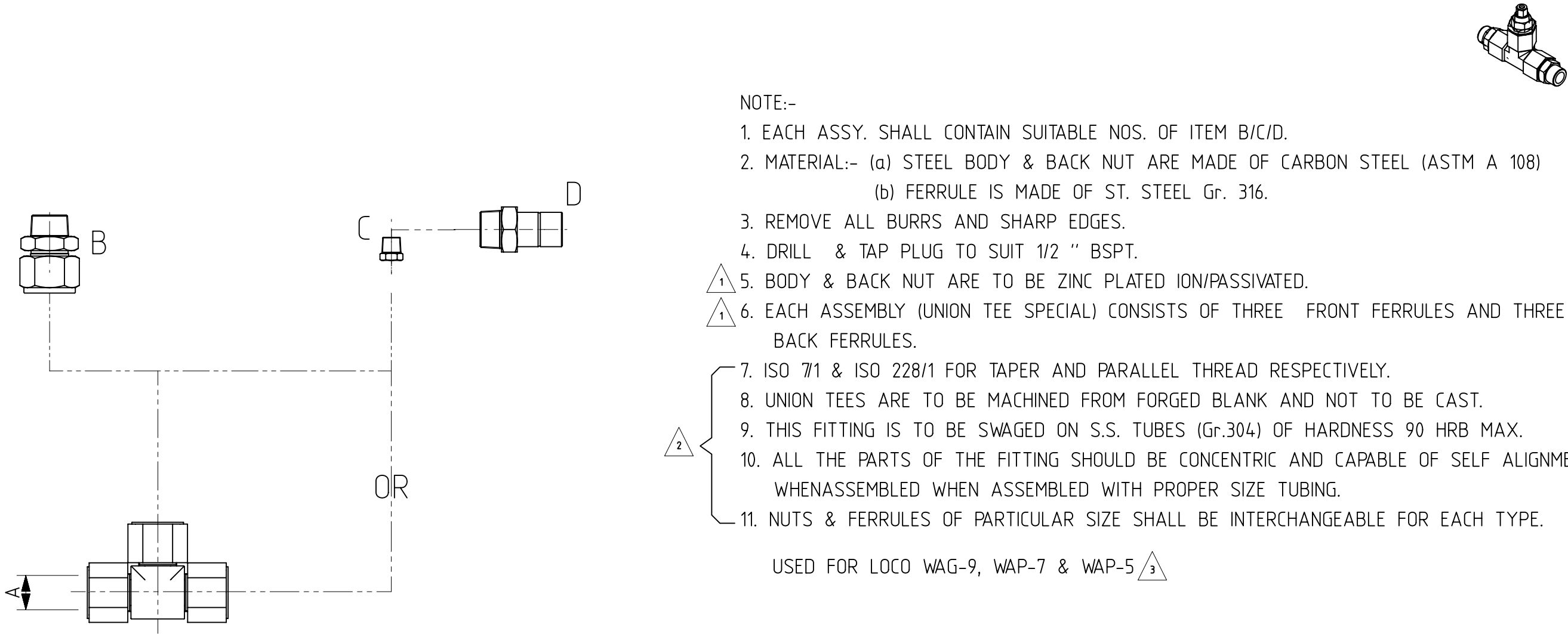
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- NOTE:-
1. EACH ASSY. SHALL CONTAIN SUITABLE NOS. OF ITEM B/C/D.
 2. MATERIAL:- (a) STEEL BODY & BACK NUT ARE MADE OF CARBON STEEL (ASTM A 108)
(b) FERRULE IS MADE OF ST. STEEL Gr. 316.
 3. REMOVE ALL BURRS AND SHARP EDGES.
 4. DRILL & TAP PLUG TO SUIT 1/2 " BSPT.
 5. BODY & BACK NUT ARE TO BE ZINC PLATED ION/PASSIVATED.
 6. EACH ASSEMBLY (UNION TEE SPECIAL) CONSISTS OF THREE FRONT FERRULES AND THREE BACK FERRULES.
 7. ISO 7/1 & ISO 228/1 FOR TAPER AND PARALLEL THREAD RESPECTIVELY.
 8. UNION TEES ARE TO BE MACHINED FROM FORGED BLANK AND NOT TO BE CAST.
 9. THIS FITTING IS TO BE SWAGED ON S.S. TUBES (Gr.304) OF HARDNESS 90 HRB MAX.
 10. ALL THE PARTS OF THE FITTING SHOULD BE CONCENTRIC AND CAPABLE OF SELF ALIGNMENT WHENASSEMBLED WHEN ASSEMBLED WITH PROPER SIZE TUBING.
 11. NUTS & FERRULES OF PARTICULAR SIZE SHALL BE INTERCHANGEABLE FOR EACH TYPE.

USED FOR LOCO WAG-9, WAP-7 & WAP-5

SL. NO.	"A" TUBE O.D.	B MALE ADAPTER TAPER THREAD TO ISO 7/1	C PLUG	D MALE CONNECTOR TAPER THREAD TO ISO 7/1	MATERIAL
1	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1 1/4"	YES	NO - SEE NOTE	STL / ST.STL
2	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1 1/4"	NO	NO	STL / ST.STL
3	1 1/2" x 1 1/2" x 1 1/2"	NO	YES	10 x 3/8"	STL / ST.STL
4	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1"	NO	NO	STL / ST.STL
5	1" x 1" x 1"	NO	YES	1/2"T x 1/2"	STL / ST.STL
6	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1 1/4"	NO	NO	STL / ST.STL
		1 1/2T x 1 1/4"	NO	NO	STL / ST.STL

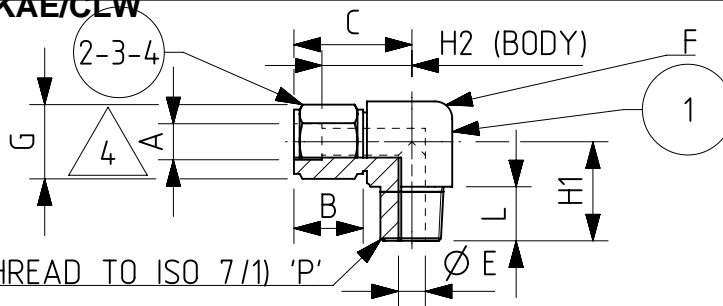
ORIGINAL SUPPLIER:- WAGELOK / USA

धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं.:2553 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पदांक GRADE NO.	स1 N1	स2 N2	स3 N3	स4 N4	स5 N5	स6 N6	स7 N7	स8 N8	स9 N9	स10 N10	स11 N11	स12 N12
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
	Ra μ m	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

5		REDRAWN IN NX WITH 3RD ANGLE PROJECTION.	15-07-20
4		SL. NO. 3 M/C Ø 10 WAS 3/8"	14-02-12
3	AMD/D&D	WAP-5 AND CLASS OF LOCO ADDED	15-01-03
2	AMD/D&D	NOTES 7 TO 11 ADDED, THREAD DESIGNATIONS OF MALE ADAPTER 'B' & MALE CONNECTOR 'D' WAS BSP, SL.NO. WAS REF.NO.	07-09-01
1	AMD/D&D	NOTES 5 & 6 ADDED, 1 1/2"x1" BSP ADDED IN COLUMN 'B' FOR REF.4, 1 1/2"x1 1/4"BSP ADDED IN COLUMN 'B' FOR REF. NO.6	19-08-98
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आधार DATED INITIAL

6	/		UNION TEE SPECIAL		SEE NOTE		
5	/		UNION TEE SPECIAL		SEE NOTE		
4	/		UNION TEE SPECIAL		SEE NOTE		
3	/		UNION TEE SPECIAL		SEE NOTE		
2	/		UNION TEE SPECIAL		SEE NOTE		
1	/		UNION TEE SPECIAL		SEE NOTE		
निर्देश संख्या REF. NO.	लागत एवं वितरण संख्या C&D NO.	अंग आरेखण संख्या PART DRG. NO.	वर्णन DESCRIPTION	मात्रा QTY.	पदार्थ MATL	विशिष्ट SPECN	प्रति भार कि. ग्रा. WT. EACH IN K.G.
अधिकृत DGN	जोधा व.अ. CHD SSE	SUBHANK AR KUMBHA KAR	चिततरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA				
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	Pradeep Khatana	SYAMA PRASAD PATRA	पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG			
अनुमोदित द.यु.वि.अ. APPROVED DYCEE	22-09-20	1:5	विशिष्ट SPECN	ASTM A108			
दिनांक DATE	22-09-20		वर्णन DESCRIPTION	UNION TEE SPECIAL			
रैखिक अनुपात SCALE	1:5		आरेखण संख्या DRAWING NO.	1209-18.306-031			
संदर्भ / REF. 182-00516	परिवर्तन संख्या ALTERATION NO.	5	पुर्ण SHEET	1 OF 1	A3		

5102232/2026/O/o Dy.CEE/DKAE/CLW





ORIGINAL SUPPLIER:
SWAGELOK / U.S.A.

4 (MALE TAPER THREAD TO ISO 7/1) 'P'

SL. NO.	'A' TUBE O.D.	'P' TO ISO 7/1	B	C	H1	H2	L	'E' MINIMUM OPENING	'G' HEX. FLAT	'F' WRENCH PAD
1										
2	10 mm	3/8"	19.3	31.2	26.2	23.8	14.2	7.1	11/16"	11/16"
3	1/2"	1/2"	22	36	33	25.9	19.1	9.5	7/8"	13/16"
4	1"	1"	26.5	49	46.5	36.8	23.9	22.4	1-1/2"	1-3/8"
5	1-1/2"	1-1/4"	46	78	60.4	50.8	23.9	27.8	60	55
6	1-1/2"	1-1/2"	46	80	60.4	56.4	26.9	34.1	60	55
7	1"	3/4"	26.5	49	41.7	36.8	19.1	15.9	1-1/2"	1-3/8"
8	10 mm	1/2"	19.5	33.3	33	25.9	19.1	7.1	11/16"	13/16"
9	3/4"	1/2"	22	44.6	41.7	34.5	19.1	15.9	1-1/8"	1-1/16"
10	22 mm	1"	22	44.6	46.5	34.5	23.9	18.3	32	1-3/8"
11	22 mm	3/4"	19.5	44.6	41.7	34.5	19.1	15.9	32	1-3/8"
12	1/2"	3/8"	22	36	28.2	25.9	14.2	9.5	7/8"	13/16"
13	10	1/4"	19.3	31.2	26.2	23.8	14.2	7.1	11/16"	11/16"
14	1/2"	1/4"	22.0	36.0	33.0	25.9	19.1	9.5	7/8"	13/16"
15	1/2"	1/2"	22.0	36.0	33.0	25.9	19.1	9.5	7/8"	13/16"

NOTE:

1. REMOVE ALL BURRS & SHARP EDGES.
2. BODY & BACKNUT ARE TO BE ZINC PLATED (10 μ)/PASSIVATED.
- 3.
4. ALL DIMENSIONS ARE IN mm EXCEPT OTHERWISE STATED.
5. ISO 7/1 & ISO 228/1 FOR TAPER & PARALLEL THREADS RESPECTIVELY.
6. ELBOWS ARE TO BE MACHINED FROM FORGED BLANKS AND NOT TO BE CAST.
7. GENERAL TOLERANCES ON DIMENSIONS:
(a) BELOW 25 mm $\begin{matrix} +0.5 \\ -0 \end{matrix}$ (b) ABOVE 25 mm $\begin{matrix} +1.0 \\ -0 \end{matrix}$ EXCEPT 'A' 'P'
8. DIMENSIONS B, C ARE TYPICAL FINGER-TIGHT.
9. ALL THE PARTS OF FITTINGS SHOULD BE CONCENTRIC AND BE CAPABLE OF SELF-ALIGNMENT WHEN ASSEMBLED WITH PROPER SIZE FITTING.
10. NUTS & FERRULES OF PARTICULAR SIZE SHALL BE INTERCHANGABLE FOR EACH TYPE.
11. THIS FITTING IS TO BE SWAGED ON S.S. TUBE (Gr.304) OF HARDNESS 90 MAX

												4			BACK FERRULE	1	STAINLESS STEEL	GR. 316		
												3			FRONT FERRULE	1	STAINLESS STEEL	GR. 316		
												2			BACK NUT	1	CARBON STEEL	ASTM A108		
												1			BODY	1	CARBON STEEL	ASTM A108		
												निर्देश संख्या	लागत एवं विवरण संख्या	अंग आरेखण संख्या	वर्णन	मात्रा	पदार्थ	विशिष्ट	प्रति भार कि. ग्रा.	
												REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.	
												अधिकृत		<div><div>चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA</div></div>						
												DGN								
												जॉचा व.अ.								
												CHD SSE								
												समीक्षित स.वि.अ. / व.वि.अ.		<div><div>चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA</div></div>						
												REVIEWED AEE / SEE								
												अनुमोदित स.वि.अ.								
												APPROVED DYCEE								
												दिनांक		<div><div>चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA</div></div>						
												DATE								
												22-09-20								
												रैखिक अनुपात								
												SCALE		1:1						
												संदर्भ / REF.		<div><div>चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA</div></div>						
												182-00403								
												ALT. - 9								
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												8		पृष्ठ SHEET 1 OF 1						
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