



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	Tube-Mac Piping Technologies Ltd.
Address	853 Arvin Avenue, Stoney Creek, Ontario, L8E 5N8, Canada
Place of Production	Tube-Mac Piping Technologies Ltd. 853 Arvin Avenue, Stoney Creek, Ontario, L8E 5N8, Canada
Type	Pipes And Crimped Fittings
Description	PYPLOK Mechanically attached fittings compression coupling, 360 degrees radial swage with o-ring seals.
Trade Name	PYPLOK Types DM20,DM60 & DM80 PYPLOK Types DP40N & DP40M
Application	For application in Class I, II and III piping systems
Specified Standard	Lloyd's Register Rules and Regulations for Ships, July 2022, Part.5,Chapter.12 IACS UR P2, Feb 2021 ISO 19921 (2005) - Ships and marine technology - Fire resistance of metallic pipe components with resilient and elastomeric seals test methods

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Specialist-Engineering Systems to Lloyd's
Register Canada Limited
A member of the Lloyd's Register group

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Ratings see Appendix1

Other Conditions When used in marine/offshore classed installations the following conditions apply:

1. Couplings covered under this type approval shall not be installed in systems subjected to vacuum conditions.
2. Couplings are not permitted to be installed in machinery spaces of Category A or accommodation spaces. Couplings may be accepted in other machinery spaces provided the joints are located in easily visible and accessible positions.
3. Copper Nickel couplings are not tested to ISO 19921(2005).

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Canada Limited of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: 13/60003(E3)

The Design Appraisal Document LR22521157TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22521157TA

Appendix

1. Material of construction:

Carbon Steel:	ASTM A350 Gr. LF2 Class 1
Stainless Steel:	ASTM A479 G3. 316, S32205, S32750 & S31803
Copper Nickel:	C7150 Gr. 70/30

2. Type DM20 ratings:

DM20	Stainless Steel	Carbon Steel	Copper Nickel	Temp Range of Viton Seals
	Working Pressure(bar)			(°C)
1/4" (DN 6)	415	345	269	-20 to 200
3/8" (DN 10)	415	345	269	
1/2" (DN 15)	407	339	264	
3/4" (DN 20)	400	333	260	
1" (DN 25)	393	328	255	
1 1/4" (DN 32)	390	325	253	
1 1/2" (DN 40)	390	325	253	
2" (DN 50)	390	276	215	

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3. Type DP40N ratings:

DP40N	Stainless Steel	Carbon Steel	Copper Nickel	Temp Range of Viton Seals
	Working Pressure(bar)			(°C)
2 1/2" (DN 65)	35	35	25	-20 to 200
3" (DN80)	35	35	25	

4. Type DM 60 ratings:

DM60	Stainless Steel	Carbon Steel	Copper Nickel	Temp Range of Viton Seals
	Working Pressure(bar)			(°C)
1/4"	483	402	313	-20 to 200
3/8"	400	333	260	
1/2"	420	350	273	
5/8"	420	350	273	
3/4"	414	345	269	
1"	400	333	260	
1 1/4"	400	333	260	
1 1/2"	390	325	253	
2"	390	275	215	

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5. Type DM80 ratings:

DM80	Stainless Steel	Carbon Steel	Copper Nickel	Temp Range of Viton Seals
	Working Pressure(bar)			(°C)
6mm	450	375	390	-20 to 200
8mm	430	355	370	
10mm	415	345	360	
12mm	400	335	345	
15mm	400	335	-	
16mm	400	335	345	
18mm	310	325	-	
20mm	390	255	335	
22mm	305	255	-	
25mm	309	325	335	
28mm	300	325	-	
30mm	390	325	335	
35mm	295	245	-	
38mm	390	325	335	
42mm	390	325	335	
50mm	350	295	305	
60mm	330	275	285	

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6. Type DP40M ratings:

DP40M	Stainless Steel	Carbon Steel	Copper Nickel	Temp Range of Viton Seals
	Working Pressure(bar)			(°C)
44.5mm (DN 40)	-	-	31	-20 to 200
57mm (DN 50)	-	-	31	