SLIPSIL® SEALING PLUGS FOR METALLIC/ GRP/PLASTIC PIPES & CABLES

TESTED TO IMO RESOLUTION A.754(I8); FIRE CLASS AO-A60 EC (MED) CERTIFICATE MED-B-5067 ISSUED BY DNV

slipsil





CONTENTS

- page I Introduction to BEELE Engineering
- pages 2-3 Performance of SLIPSIL® sealing plugs
- pages 4-9 Tables of the SLIPSIL® sealing plugs
- pages IO-II Properties of SLIPSIL® and possible configurations
- pages 12-17 Installation instructions SLIPSIL® sealing plugs
- pages 18-19 Tables of the SLIPSIL® multi-sealing plugs
- pages 20-21 Installation instructions SLIPSIL® multi-sealing plugs
- pages 22-27 Installation instructions SLIPSIL®/DYNATITE® sealing plugs for installation from one side
- page 28 SLIPSIL® adapter plugs
- page 29 SLIPSIL[®]/CONDUCTON combination for EMC protection
- pages 30-36 SLIPSIL[®] sealing plugs for plastic pipe penetrations
- page 37 BEELE R&D special applications

Copyright	 BEELE Engineering BV/CSD International BV, Aalten, the Netherlands. Proprietary rights on all drawings and technical data released in this brochure. © 1997-2010
Edition	: March 2010
Note	: No part of this publication may be reproduced without explicit written approval of BEELE Engineering BV.
Research & Development	: BEELE Engineering BV, Aalten, the Netherlands.
Note	: The manufacturer reserves the right to make dimensional and design modifications without prior notification.
®	: ACTIFIRE, ACTIFOAM, AQUASTOP, BEEBLOCK, BEELE, BEESEAL, CONDUCTON, CRUSHER, CSD, CSD THE SIMPLE SEAL SYSTEM, DRIFIL, DYNATITE, FIRSTO, FIWA, LEAXEAL, MULTI-ALL-MIX, NOFIRNO, RAPID TRANSIT SYSTEM, RIACNOF, RISE, RISWAT, \$, SLIPSIL, flanges SLIPSIL plugs, ULEPSI and YFESTOS are registered trade marks of BEELE Engineering BV.
brochure code	: slipsil/hb/en/mar





BEELE ENGINEERING -SAFETY, RELIABILITY, INVOLVEMENT

Every moment of the day, in every business and every situation, the threat of fire is present. For over three decades, BEELE Engineering has specialized in passive fire safety in the form of systems which prevent the spread of fire, smoke, water and gases via cable and pipe penetrations. With our superior sealing technologies, we have become the undisputed Number One in this particular field.

It is BEELE Engineering's philosophy that R&D exists to respond to market demands. Only then can research and development activities be classed as functional. Only then are innovative solutions generated for problems that have current or near-term relevance. Our policy is one of continuous active response to customers' demands, or to modified or new functional requirements. We listen, we observe and we interpret, and so we arrive at new product developments and bold innovations.

BEELE Engineering has built up an enormous body of specialized expertise and knowledge. Our company is the world market leader in sealing systems for state-of-the-art shipbuilding applications as well as civil and industrial applications. We do not follow trends, we set them.

Development of new products and technologies, as well as pioneering know-how, are present in every fibre of our organization. We are driven by passion for our specialization, and our customer involvement drives us to exceed the boundaries of what is technically feasible.

BEELE Engineering operates world-wide. From our agencies in virtually every industrialized country, our support and services are always somewhere nearby. We are there for you – also for on-site advice or in-house demonstrations, instructions and support at your location.





Our development, test and production facilities are among the most advanced in the world. The factory is equipped with state of the art machines, which are tailor made to the requirements of our company. We work to a high-level ISO system, with unmatched involvement. Continuous investment in design technologies, combined with highest quality polymers, is our guarantee for the safety of lives and equipment. That is why BEELE Engineering is internationally recognized by all relevant certification institutes and classification societies.





BEELE Engineering is dedicated to fire safety. From the pictures below the text, it might be clear that fire prevention is not child's play, nor can it just be disregarded. In a fire, the partitions can get so hot that even approaching them is impossible. Right then it is of utmost importance that the cable and pipe penetration seals stop the spread of fire and smoke to adjacent areas. To address this problem, BEELE Engineering has developed the NOFIRNO[®] technology. The cable and pipe penetrations, based on this technology, have been tested successfully for A- and H-class, A-0 and H-0 class and Jet Fires.







2) The NOFIRNO® rubber

can be exposed to high temperatures (up to

180 °C), making the

NOFIRNO[®] sealing

system suitable for

arctic environments. 4) The NOFIRNO[®] seal-

3) NOFIRNO® stays flexi-

ble at temperatures of -50

°C, allowing application in

ant/rubber has optimum

fire stopping properties:

a) creates immediately

a protective layer at the

b) will not be consumed

5) Higher thermal insula-

under fire exposure c) prevents smoke

tion values under fire

steam lines.

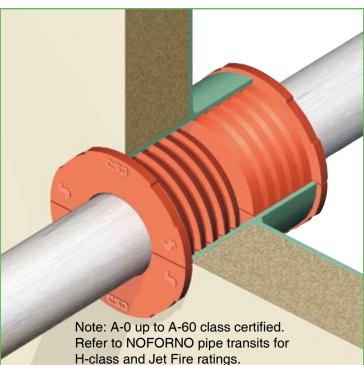
fire side

emission

load.

The NOFIRNO[®] rubber grade, which is compounded under strict conditions in our factory, is suitable for gas and water tight ducting and for fire rated applications as well. 1) the NOFIRNO[®] rubber shows minimum permanent deformation and limited stress relaxation, guaranteeing mechanical stability in the long term.

We have been involved with fire resistant rubbers for decades. The drawbacks of certain fire resistant rubbers are halogen content, hardness of the highly filled rubbers, hardening during lifetime, and high permanent deformation sets. All these disadvantages will have an impact on performance in the long run. NOFIRNO[®] rubber does not have the above mentioned drawbacks. The processing conditions for optimized compounding in our factory assure highest performance of the rubber. NOFIRNO[®] rubber is



traceable to prevent counterfeiting and to guarantee users the proven NOFIRNO^{\ensuremath{\\$}} quality.

By examining the surface charring and the rubber residues inside the product, it can easily be determined whether or not NOFIRNO[®] has been used.

- 6) Shorter conduit depths.
- 7) Approved for A-0 and H-0 class without the use of any insulation. Certified up to A-60 and H-120 class.
- 8) Successfully exposed to a 2 hour Jet Fire test.
- 9) Can be combined with RISE® and RISE®/ULTRA.





FIRE SAFETY WITHOUT ANY EXTRAS - NOW ACHIEVABLE

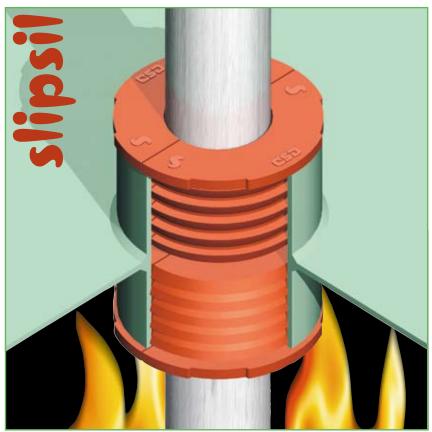
Synthetic rubbers are combustible. Rubber grades can be made only more or less fire retardant with the help of fire suppressant ingredients. The drawback of filling rubbers with large amounts of additives is that the mechanical properties might suffer. The hardness of the vulcanized products of such compounds might be reasonably high. Both features have an impact on the sealing capacity and the long term behaviour. Hardening and permanent deformation of the product during service life also have a negative impact on performance. NOFIRNO® rubber is halogen free, does not harden during service life, has outstanding weathering properties, does not shrink during fire exposure, has an oxygen index of 55% (>30% is flame retardant) and a low smoke index. NOFIRNO[®] rubber can be used in a very wide temperature range (-50 °C - +180 °C). Optimum fire safety guaranteed.

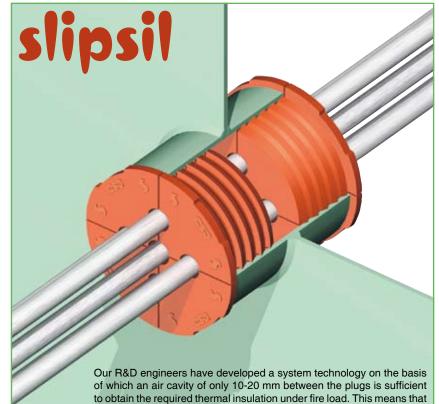
Because the plugs prevent direct contact between the service pipe and the sleeve, different types of pipes can be passed through steel or aluminium constructions without the problems of joints and electric couples.

Pipe penetrations sealed with plugs can be shorter in length than the common methods, in this way saving weight. With the use of SLIPSIL® sealing plugs, vibrations and noise transmission will be easily absorbed. Another advantage of the SLIPSIL® sealing plugs is that mechanical tensions between the bulkhead/deck and the service pipes are avoided. SLIPSIL® offers the possibility of using various pipe materials! *The plugs offer also a high degree of*

water tightness! The design of the SLIPSIL[®] plugs is based on the LEAXEAL[®] technology, developed by BEELE Engineering, to obtain longest service life and highest tightness ratings.







the conduit length is substantially reduced.







25 24.5 - 25.6 54 5 - 12 27 26.5 - 27.6 54 5 - 15 28 27.5 - 28.5 54 5 - 16 30 29.5 - 30.5 54 5 - 16 32 31.5 - 32.5 54 5 - 16 34 33.5 - 34.5 54 5 - 20 37 36.5 - 37.7 54 5 - 20 40 39.5 - 40.7 54 5 - 22 41 40.5 - 41.7 54 5 - 28 50 49.5 - 50.7 66 6 - 32 52 53 52.0 - 53.7 50 66 52 14 - 40 90 62 61.0 - 62.7 90 66 91 14 - 40 90 63 52.5 54.0 - 57.7 90 66 91 12 - 50 64 67.0 -68.7 90 66 92 2.50 97 75 74.0 -75.7 66 22 - 50 98 97.0 - 80.7 66 22 - 50 78 77.0 - 78.7 66 22 - 50 75 74.0 - 75.7 7	PLUG SERIES	CONDUIT SLEEVE		PLU LEN	ig Igth	PIPE DIAME	ſER
27 26.5 - 27.6 54 5 - 15 28 27.5 - 28.5 54 5 - 16 30 29.5 - 30.5 54 5 - 16 32 31.5 - 32.5 54 5 - 16 34 33.5 - 34.5 54 5 - 20 37 36.5 - 37.7 54 5 - 20 40 39.5 - 40.7 54 5 - 22 41 40.5 - 41.7 54 5 - 25 43 42.5 - 43.7 54 5 - 25 53 52.0 - 53.7 E 66 E 6 - 34 E 57 56.0 - 57.7 50 66 50 14 - 40 50 60 59.0 - 60.7 56 50 14 - 40 50 50 61 59.0 - 60.7 56 50 14 - 40 50 50 70 69.0 - 70.7 66 50 14 - 40 50 50 74 66.0 - 67.7 70 66 22 - 50 76 74 66.0 - 67.7 76 66 22 - 50 76 75 <td>25</td> <td>24.5 - 25.6</td> <td></td> <td>54</td> <td></td> <td>5 - 12</td> <td></td>	25	24.5 - 25.6		54		5 - 12	
28 27.5 - 28.5 54 5 - 16 30 29.5 - 30.5 54 5 - 16 34 33.5 - 34.5 54 5 - 18 35 34.5 - 35.7 54 5 - 20 40 39.5 - 40.7 54 5 - 22 41 40.5 - 41.7 54 5 - 28 50 49.5 - 50.7 66 6 - 34 5 51 54.0 - 55.7 54 5 - 28 50 49.5 - 50.7 66 6 - 34 5 55 54.0 - 55.7 56 66 90 14 - 40 90 60 59.0 - 60.7 66 90 14 - 40 90 90 62 61.0 - 62.7 90 66 90 14 - 40 90 68 67.0 - 68.7 76 66 22 - 50 17 75 74.0 - 75.7 66 22 - 50 18 70 69.0 - 70.7 66 22 - 50 18 70 69.0 - 70.7 66 22 - 50 18 70 90.0 - 97.7 66	27	26.5 - 27.6		54		5 - 15	
3029.5 \cdot 30.5545 \cdot 163231.5 \cdot 32.5545 \cdot 163433.5 \cdot 34.5545 \cdot 183534.5 \cdot 35.7545 \cdot 203736.5 \cdot 37.7545 \cdot 204039.5 \cdot 40.7545 \cdot 224140.5 \cdot 41.7545 \cdot 285049.5 \cdot 50.7666 \cdot 325352.0 \cdot 53.7566 \cdot 285554.0 \cdot 55.7566 \cdot 345756.0 \cdot 57.759666059.0 \cdot 60.766616 \cdot 22 \cdot 507069.0 \cdot 70.7666261.0 \cdot 62.77069.0 \cdot 70.76867.0 \cdot 68.77069.0 \cdot 70.77574.0 \cdot 75.774.0 \cdot 75.77574.0 \cdot 75.77622 \cdot 507877.0 \cdot 78.7796628 \cdot 608281.0 \cdot 82.76628 \cdot 608281.0 \cdot 82.76640 \cdot 649796.0 \cdot 97.76640 \cdot 649493.0 \cdot 94.76640 \cdot 649796.0 \cdot 97.76640 \cdot 75103102.0 \cdot 103.76640 \cdot 75104105.7105104.0 \cdot 105.710640 \cdot 76110109.0 \cdot 110.76660 \cdot 92125<				54			
32 31.5 $\cdot 32.5$ 54 5 - 16 34 33.5 $\cdot 34.5$ 54 5 - 20 37 36.5 $\cdot 37.7$ 54 5 - 20 40 39.5 $\cdot 40.7$ 54 5 - 22 41 40.5 $\cdot 41.7$ 54 5 - 25 43 42.5 $\cdot 43.7$ 54 5 - 28 50 49.5 $\cdot 50.7$ 66 6 $\cdot 34$ 10 55 54.0 $\cdot 55.7$ 12 66 6 $\cdot 34$ 11 60 59.0 $\cdot 60.7$ 66 14 $\cdot 40$ 10 61 66 14 $\cdot 40$ 10 10 62 61.0 $\cdot 62.7$ 10 66 14 $\cdot 40$ 10 68 67.0 $\cdot 68.7$ 16 14 $\cdot 40$ 10 10 68 67.0 $\cdot 68.7$ 16 12 $\cdot 50$ 17 16 14 $\cdot 40$ 10 68 67.0 $\cdot 68.7$ 16 12 $\cdot 50$ 17 16 14 $\cdot 40$ 19 68 67.0 $\cdot 68.7$ 16 12 $\cdot 50$ 10 10 10 10 10 10 1	30			54		5 - 16	
34 $33.5 \cdot 34.5$ 54 $5 \cdot 18$ 35 $34.5 \cdot 35.7$ 54 $5 \cdot 20$ 40 $39.5 \cdot 40.7$ 54 $5 \cdot 22$ 41 $40.5 \cdot 41.7$ 54 $5 \cdot 22$ 43 $42.5 \cdot 43.7$ 54 $5 \cdot 28$ 50 $49.5 \cdot 50.7$ 66 $6 \cdot 32$ 53 $52.0 \cdot 53.7$ 56 $6 \cdot 34$ 57 $56.0 \cdot 57.7$ 56 $6 \cdot 34$ 57 $56.0 \cdot 57.7$ 566 $514 \cdot 40$ 62 $61.0 \cdot 62.7$ 966 62 $61.0 \cdot 68.7$ 70 $66.0 \cdot 67.7$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 78 $77.0 \cdot 78.7$ 66 $22 \cdot 50$ 78 $77.0 \cdot 78.7$ 66 $22 \cdot 50$ 80 $79.0 \cdot 80.7$ 66 $40 \cdot 64$ 94 $93.0 \cdot 94.7$ 66 $40 \cdot 64$ 97 $96.0 \cdot 97.7$ 66 $40 \cdot 75$ 102 $101.0 \cdot 102.7$ 66 $40 \cdot 75$ 103 $102.0 \cdot 103.7$ 66 $40 \cdot 75$ 104 105.7 66 $40 \cdot 75$ 107 $106.0 \cdot 107.7$ 66 $40 \cdot 75$ 103 $102.0 \cdot 103.7$ 66 $40 \cdot 75$ 104 105.7 66 $40 \cdot 75$ 105 $104.0 \cdot 105.7$ 66 $60 \cdot 92$ 125 $124.0 \cdot 125.7$ 66							
35 $34.5 \cdot 35.7$ 54 $5 \cdot 20$ 37 $36.5 \cdot 37.7$ 54 $5 \cdot 22$ 41 $40.5 \cdot 41.7$ 54 $5 \cdot 22$ 41 $40.5 \cdot 41.7$ 54 $5 \cdot 22$ 43 $42.5 \cdot 43.7$ 54 $5 \cdot 28$ 50 $49.5 \cdot 50.7$ 66 $6 \cdot 32$ 53 $52.0 \cdot 53.7$ E 66 e 57 $56.0 \cdot 57.7$ 90 66 90 57 $56.0 \cdot 57.7$ 90 66 90 60 $59.0 \cdot 60.7$ 90 66 90 61 $4 \cdot 40$ 90 62 $61.0 \cdot 62.7$ 90 66 90 67 $66.0 \cdot 67.7$ 90 66 90 68 $67.0 \cdot 68.7$ 96 $22 \cdot 50$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 78 $77.0 \cdot 78.7$ 66 $22 \cdot 50$ 80 $79.0 \cdot 80.7$ 66 $28 \cdot 60$ 90 $89.0 \cdot 90.7$ 66 $40 \cdot 64$ 94 $93.0 \cdot 94.7$ 66 $40 \cdot 75$ 102 $101.0 \cdot 102.7$ 66 $40 \cdot 75$ 103 $102.0 \cdot 103.7$ 66 $40 \cdot 75$ 107 $106.0 \cdot 107.7$ 66 $40 \cdot 75$ 107 $106.0 \cdot 107.7$ 66 $40 \cdot 75$ 103 $102.0 \cdot 103.7$ 66 $40 \cdot 75$ 105 $104.0 \cdot 105.7$ 66 $40 \cdot 75$ 107 $106.0 \cdot 107.7$ 66 $40 \cdot 75$ 105 $124.0 \cdot 125.7$ 66	34			54			
37 $36.5 \cdot 37.7$ 54 $5 \cdot 20$ 40 $39.5 \cdot 40.7$ 54 $5 \cdot 22$ 41 $40.5 \cdot 41.7$ 54 $5 \cdot 25$ 43 $42.5 \cdot 43.7$ 54 $5 \cdot 28$ 50 $49.5 \cdot 50.7$ 66 u $6 \cdot 34$ u 55 $54.0 \cdot 55.7$ u 66 u $6 \cdot 34$ u 57 $56.0 \cdot 57.7$ 66 u 66 u $14 \cdot 40$ u 60 $59.0 \cdot 60.7$ 90 66 90 $14 \cdot 40$ 90 62 $61.0 \cdot 62.7$ 90 66 $22 \cdot 50$ 76 70 $69.0 \cdot 70.7$ 66 $22 \cdot 50$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 75 78 $77.0 \cdot 78.7$ 66 $22 \cdot 50$ 78 $77.0 \cdot 78.7$ 66 $40 \cdot 64$ 97 $96.0 \cdot 97.7$ 66 $40 \cdot 64$ 94 $93.0 \cdot 94.7$ 66 $40 \cdot 75$ 102 $101.0 \cdot 102.7$ 66 $40 \cdot 75$ 102 $101.0 \cdot 102.7$ 66 $40 \cdot 75$ 105 $104.0 \cdot 105.7$ 79 $88 \cdot 125$ 106 $195.0 \cdot 146.7$ 79 $88 \cdot 125$ 107 $106.0 \cdot 107.7$ 79 $88 \cdot 125$ 106 $145.0 $				54			
40 $39.5 \cdot 40.7$ 54 $5 \cdot 22$ 41 $40.5 \cdot 41.7$ 54 $5 \cdot 28$ 50 $49.5 \cdot 50.7$ 66 $6 \cdot 32$ 53 $52.0 \cdot 53.7$ E 66 E 55 $54.0 \cdot 55.7$ E 66 E 57 $56.0 \cdot 57.7$ 92 66 92 60 $59.0 \cdot 60.7$ 92 66 92 61 62.7 66 92 $14 \cdot 40$ 92 62 $61.0 \cdot 62.7$ 92 66 92 $14 \cdot 40$ 92 68 $67.0 \cdot 68.7$ 76 66 $22 \cdot 50$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 75 $74.0 \cdot 75.7$ 66 $22 \cdot 50$ 78 $77.0 \cdot 78.7$ 66 $28 \cdot 60$ 82 $81.0 \cdot 82.7$ 66 $28 \cdot 60$ 82 $81.0 \cdot 82.7$ 66 $40 \cdot 64$ 94 $93.0 \cdot 94.7$ 66 $40 \cdot 64$ 94 $93.0 \cdot 94.7$ 66 $40 \cdot 75$ 102 $101.0 \cdot 102.7$ 66 $40 \cdot 75$ 103 $102.0 \cdot 103.7$ 66 $40 \cdot 75$ 105 $104.0 \cdot 105.7$ 66 $60 \cdot 92$ 118 $117.5 \cdot 119.2$ 66 $60 \cdot 92$ 122 $121.0 \cdot 122.7$ 66 $60 \cdot 92$ 124 $145.0 - 146.7$ 79 $88 \cdot 125$ 105 $144.0 \cdot 156.7$ 79 $88 \cdot 125$ 105 $149.0 \cdot 150.7$ 79 $88 \cdot 125$ 105 $149.0 \cdot 150.7$ </td <td></td> <td></td> <td></td> <td>54</td> <td></td> <td></td> <td></td>				54			
43 $42.5 + 43.7$ 54 $5 - 28$ 50 $49.5 - 50.7$ 66 $6 - 32$ 53 $52.0 - 53.7$ E 66 E 55 $54.0 - 55.7$ E 66 E 57 $56.0 - 57.7$ 80 66 80 60 $59.0 - 60.7$ 80 66 $14 - 40$ 62 $61.0 - 62.7$ 80 66 $14 - 40$ 67 $66.0 - 67.7$ 19 66 19 70 $69.0 - 70.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 104.0 - 105.7 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $60 - 92$ 125 $124.0 - 122.7$ 66 $60 - 92$ 126 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 144 $145.0 - 146.7$ 79 $88 - 125$ 150 $149.0 - 150.7$ 79 $88 - 125$ 1510 $159.0 - 156.7$ 79 $88 - 125$ 152 $154.0 - 156.7$ 79 $88 - 125$ 154 $155.0 - 156.7$ 79 $88 - 12$				54			
43 $42.5 + 43.7$ 54 $5 - 28$ 50 $49.5 - 50.7$ 66 $6 - 32$ 53 $52.0 - 53.7$ E 66 E 55 $54.0 - 55.7$ E 66 E 57 $56.0 - 57.7$ 80 66 80 60 $59.0 - 60.7$ 80 66 $14 - 40$ 62 $61.0 - 62.7$ 80 66 $14 - 40$ 67 $66.0 - 67.7$ 19 66 19 70 $69.0 - 70.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 104.0 - 105.7 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $60 - 92$ 125 $124.0 - 122.7$ 66 $60 - 92$ 126 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 144 $145.0 - 146.7$ 79 $88 - 125$ 150 $149.0 - 150.7$ 79 $88 - 125$ 1510 $159.0 - 156.7$ 79 $88 - 125$ 152 $154.0 - 156.7$ 79 $88 - 125$ 154 $155.0 - 156.7$ 79 $88 - 12$	41	40.5 - 41.7		54		5 - 25	
50 $49.5 - 50.7$ 66 E $6 - 32$ E 53 $52.0 - 53.7$ E 66 E $6 - 34$ E 55 $54.0 - 55.7$ E 66 E $6 - 34$ E 57 $56.0 - 57.7$ E 66 E $6 - 34$ E 60 $59.0 - 60.7$ E 66 E $14 - 40$ E 62 $61.0 - 62.7$ E 66 E $14 - 40$ E 67 $66.0 - 67.7$ E 66 E $22 - 50$ E 70 $69.0 - 70.7$ 66 $22 - 50$ E E 75 $74.0 - 75.7$ 66 $22 - 50$ E 78 $77.0 - 78.7$ 66 $28 - 60$ $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ $22 - 50$ 80 $79.0 - 80.7$ 66 $24 - 60$ $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 122.7 79 $88 - 125$ 105 $104.0 - 155.7$ 79 $88 - 125$ 105 $104.0 - 150.7$ 79 $88 - 125$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ <td>43</td> <td></td> <td></td> <td>54</td> <td></td> <td>5 - 28</td> <td></td>	43			54		5 - 28	
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <	50		_	66	_	6 - 32	
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <	53	52.0 - 53.7	ши	66	ши	6 - 34	ш
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <	55	54.0 - 55.7	ini	66	ini	6 - 34	i.
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <	57	56.0 - 57.7	su	66	su		su
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <		59.0 - 60.7	sio		isio	14 - 40	Isio
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <	62	61.0 - 62.7	nər	66	nər	14 - 40	ner
68 $67.0 - 68.7$ \overline{a} 66 \overline{a} $20 - 50$ \overline{a} 70 $69.0 - 70.7$ 66 $22 - 50$ \overline{a} 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 124 125.7 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 <	67	66.0 - 67.7	din	66	din		din
70 $69.0 - 70.7$ 66 $22 - 50$ 75 $74.0 - 75.7$ 66 $22 - 50$ 78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $28 - 60$ 90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 75$ 107 $106.0 - 107.7$ 66 $40 - 75$ 107 $106.0 - 107.7$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 150 $149.0 - 150.7$ 79 $88 - 125$ 154 $153.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 1	68	67.0 - 68.7	all	66	all	20 - 50	all
78 $77.0 - 78.7$ 66 $22 - 50$ 80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $28 - 60$ 90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 75$ 107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 150 $149.0 - 150.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 200 $259.0 - 260.7$ 91 $160 - 219$ <td>70</td> <td></td> <td></td> <td>66</td> <td></td> <td></td> <td></td>	70			66			
80 $79.0 - 80.7$ 66 $28 - 60$ 82 $81.0 - 82.7$ 66 $28 - 60$ 90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 75$ 100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $40 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 150 $149.0 - 150.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 219$	75	74.0 - 75.7		66		22 - 50	
82 $81.0 - 82.7$ 66 $28 - 60$ 90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 92$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 150 $149.0 - 150.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 219$	78	77.0 - 78.7		66		22 - 50	
90 $89.0 - 90.7$ 66 $40 - 64$ 94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 219$	80	79.0 - 80.7		66		28 - 60	
94 $93.0 - 94.7$ 66 $40 - 64$ 97 $96.0 - 97.7$ 66 $40 - 64$ 100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 200 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 219$	82	81.0 - 82.7		66		28 - 60	
97 $96.0 - 97.7$ 66 $40 - 64$ 100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 219$	90	89.0 - 90.7		66		40 - 64	
100 $99.0 - 100.7$ 66 $40 - 75$ 102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 156 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 219$	94	93.0 - 94.7		66		40 - 64	
102 $101.0 - 102.7$ 66 $40 - 75$ 103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 250.7$ 91 $160 - 219$	97	96.0 - 97.7		66		40 - 64	
103 $102.0 - 103.7$ 66 $26 - 75$ 105 $104.0 - 105.7$ 66 $40 - 76$ 107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 219$	100	99.0 - 100.7		66		40 - 75	
105 $104.0 - 105.7$ 66 $40 - 75$ 107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 219$	102	101.0 - 102.7		66		40 - 75	
107 $106.0 - 107.7$ 66 $40 - 76$ 110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 219$	103	102.0 - 103.7		66		26 - 75	
110 $109.0 - 110.7$ 66 $48 - 80$ 118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 91 $160 - 200$ 260 $259.0 - 260.7$ 91 $160 - 219$	105	104.0 - 105.7		66		40 - 75	
118 $117.5 - 119.2$ 66 $60 - 90$ 122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 219$	107	106.0 - 107.7		66		40 - 76	
122 $121.0 - 122.7$ 66 $60 - 92$ 125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 219$	110			66		48 - 80	
125 $124.0 - 125.7$ 66 $60 - 92$ 128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 219$	118	117.5 - 119.2		66		60 - 90	
128 $127.0 - 128.7$ 66 $60 - 92$ 131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 200$ 260 $259.0 - 260.7$ 91 $160 - 219$		121.0 - 122.7				60 - 92	
131 $130.5 - 132.2$ 66 $60 - 92$ 146 $145.0 - 146.7$ 79 $88 - 120$ 150 $149.0 - 150.7$ 79 $88 - 125$ 152 $151.0 - 152.7$ 79 $88 - 125$ 154 $153.0 - 154.7$ 79 $88 - 125$ 156 $155.0 - 156.7$ 79 $88 - 125$ 160 $159.0 - 160.7$ 79 $88 - 125$ 190 $189.0 - 190.7$ 79 $110 - 160$ 200 $199.0 - 200.7$ 79 $110 - 160$ 203 $202.0 - 203.7$ 79 $110 - 168$ 207 $206.0 - 207.7$ 79 $110 - 168$ 250 $249.0 - 250.7$ 91 $160 - 200$ 260 $259.0 - 260.7$ 91 $160 - 219$		124.0 - 125.7				60 - 92	
146145.0 - 146.77988 - 120150149.0 - 150.77988 - 125152151.0 - 152.77988 - 125154153.0 - 154.77988 - 125156155.0 - 156.77988 - 125160159.0 - 160.77988 - 125190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
150149.0 - 150.77988 - 125152151.0 - 152.77988 - 125154153.0 - 154.77988 - 125156155.0 - 156.77988 - 125160159.0 - 160.77988 - 125190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219		130.5 - 132.2				60 - 92	
152151.0 - 152.77988 - 125154153.0 - 154.77988 - 125156155.0 - 156.77988 - 125160159.0 - 160.77988 - 125190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
154153.0 - 154.77988 - 125156155.0 - 156.77988 - 125160159.0 - 160.77988 - 125190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
156155.0 - 156.77988 - 125160159.0 - 160.77988 - 125190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
160159.0 - 160.77988 - 125190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
190189.0 - 190.779110-160200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
200199.0 - 200.779110-160203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
203202.0 - 203.779110-168207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
207206.0 - 207.779110-168250249.0 - 250.791160-200260259.0 - 260.791160-219							
250249.0 - 250.791160-200260259.0 - 260.791160-219							
260 259.0 - 260.7 91 160-219							
300 299.0 - 300.7 91 160-250							
	300	299.0 - 300.7		91		160-250	

To select the right type of sealing plug, look for the plug series to be used on the basis of the outer diameter of the service pipe. Then make a choice for the plug type in the table of the selected plug series. For instance: a copper pipe of 42 mm OD has to be ducted. Select the plug series on the basis of the ID of the conduit

For instance: a copper pipe of 42 mm OD has to be ducted. Select the plug series on the basis of the ID of the conduit sleeve to be used and the OD of the duced pipe (67 up to 107 can be your choice). When a conduit sleeve 88.9x3.2 mm (ID = 82.5 mm) will be used a sealing plug 82/42-44 is the right choice. If a 54 mm OD copper pipe has to be ducted through a sleeve with an ID of 107.1 mm, plug type 107/54-56 has to be selected. See the tables of the series 82 and 107 on pages 7 and 8.

Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).





cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diamete	er	plug type	article number
blind	25/0	40.0100	blind	34/0	40.0600	18-20		40/18-20	40.0915
5-6	25/5-6	40.0105	5-6	34/5-6	40.0605	20-21		40/20-21	40.0915
						20-21			
6-7	25/6-7	40.0106	6-7	34/6-7	40.0606			40/21-22	40.0917
7-8	25/7-8	40.0107	7-8	34/7-8	40.0607	22		40/22	40.0918
8-9	25/8-9	40.0108	8-9	34/8-9	40.0608			40 multi is ma	c. 2x10, 3x7, 5x7
9-10	25/9-10	40.0109	9-10	34/9-10	40.0609			4.4.10	10 1000
10-11	25/10-11	40.0110	10-11	34/10-11	40.0610	blind		41/0	40.1000
11-12	25/11-12	40.0111	11-12	34/11-12	40.0611	5-6		41/5-6	40.1005
12	25/12	40.0112	12-13	34/12-13	40.0612	6-7		41/6-7	40.1006
6.12 4	07/0	40.0000	13-14	34/13-14	40.0613	7-8		41/7-8	40.1007
blind	27/0	40.0200	14-15	34/14-15	40.0614	8-9		41/8-9	40.1008
5-6	27/5-6	40.0205	15-16	34/15-16	40.0615	9-10		41/9-10	40.1009
6-7	27/6-7	40.0206	16-17	34/16-17	40.0616	10-11		41/10-11	40.1010
7-8	27/7-8	40.0207	17-18	34/17-18	40.0617	11-12		41/11-12	40.1011
8-9	27/8-9	40.0208	18	34/18	40.0618	12-14		41/12-14	40.1012
9-10	27/9-10	40.0209	blind	25/0	40.0700	14-16		41/14-16	40.1013
10-11	27/10-11	40.0210	blind	35/0 25/5 C	40.0700	16-18		41/16-18	40.1014
11-12 12-13 E	27/11-12	40.0211	5-6 6 7 E	35/5-6	40.0705	18-20	шш	41/18-20	40.1015
12-13 E	27/12-13 27/13-14	40.0212 40.0213	6-7 7-8 9-10 10-11 11-12 12-13 12-13	35/6-7 35/7-8	40.0706 40.0707	20-22 22-23	E	41/20-22 41/22-23	40.1016 40.1017
13-14 .5		40.0213 40.0214	3-9 J-0 J-1	35/8-9		22-23	sin	41/22-23	
14-15 S	27/14-15		9-10 <u>9</u>	35/8-9 35/9-10	40.0708		dimensions	41/23-24	40.1018 40.1019
15 . JS	27/15	40.0215	10-11 S	35/9-10	40.0709	24-25	JSi	41/24-25	40.1019
blind U	28/0	40.0300	11 10	35/10-11 35/11-12	40.0710	25	nei		
13-14 <u>u</u> 14-15 <u>15</u> 15 <u>blind</u> 5-6 <u>IB</u>	28/0 28/5-6	40.0300	11-12 E	35/11-12	40.0711		din	41 multi is ma	. 2x10, 3x7, 5x7
5-6 le			13-14	35/12-13	40.0712	blind	all	43/0	40 1100
	28/6-7 28/7-8	40.0306	14-15	35/13-14	40.0713		-		40.1100
7-8	28/7-8 28/8-9	40.0307			40.0714	5-6		43/5-6 43/6-7	40.1105
8-9 9-10	28/9-10	40.0308 40.0309	15-16 16-17	35/15-16 35/16-17	40.0715 40.0716	6-7 7-8		43/6-7 43/7-8	40.1106 40.1107
10-11	28/10-11	40.0309	17-18	35/17-18	40.0718	7-0 8-9		43/7-8 43/8-9	40.1107
11-12	28/11-12	40.0310	18-19	35/18-19	40.0718	8-9 9-10		43/8-9 43/9-10	40.1108
12-13	28/12-13	40.0311	19-20	35/19-20	40.0718	10-12		43/9-10	40.1109
13-14	28/13-14	40.0312	20	35/20	40.0719	12-12		43/10-12	40.1110
14-15	28/13-14	40.0313	20	33/20	40.0720	12-14		43/12-14	40.1112
15	28/15	40.0314	blind	37/0	40.0800	16-18		43/16-18	40.1112
15	20/13	40.0010	5-6	37/5-6	40.0805	18-20		43/18-20	40.1114
blind	30/0	40.0400	6-7	37/6-7	40.0806	20-22		43/20-22	40.1114
5-6	30/5-6	40.0405	7-8	37/7-8	40.0807	22-24		43/22-24	40.1116
6-7	30/6-7	40.0406	8-9	37/8-9	40.0808	24-25		43/24-25	40.1117
7-8	30/7-8	40.0407	9-10	37/9-10	40.0809	25-26		43/25-26	40.1118
8-9	30/8-9	40.0408	10-11	37/10-11	40.0810	26-27		43/26-27	40.1119
9-10	30/9-10	40.0409	11-12	37/11-12	40.0811	27-28		43/27-28	40.1120
10-11	30/10-11	40.0410	12-13	37/12-13	40.0812	28		43/28	40.1121
11-12	30/11-12	40.0411	13-14	37/13-14	40.0813				c. 2x10, 3x7, 5x7
12-13	30/12-13	40.0412	14-15	37/14-15	40.0814			45 mulu is mai	. 2810, 387, 387
13-14	30/13-14	40.0413	15-16	37/15-16	40.0815	blind		50/0	40.1200
14-15	30/14-15	40.0414	16-17	37/16-17	40.0816	6-7		50/6-7	40.1205
15-16	30/15-16	40.0415	17-18	37/17-18	40.0817	7-8		50/7-8	40.1206
16	30/16	40.0416	18-19	37/18-19	40.0818	8-9		50/8-9	40.1207
		-	19-20	37/19-20	40.0819	9-10		50/9-10	40.1208
blind	32/0	40.0500	20	37/20	40.0820	10-12		50/10-12	40.1209
5-6	32/5-6	40.0505				12-14		50/12-14	40.1210
6-7	32/6-7	40.0506	blind	40/0	40.0900	14-16		50/14-16	40.1211
7-8	32/7-8	40.0507	5-6	40/5-6	40.0905	16-18		50/16-18	40.1212
8-9	32/8-9	40.0508	6-7	40/6-7	40.0906	18-20		50/18-20	40.1213
9-10	32/9-10	40.0509	7-8	40/7-8	40.0907	20-22		50/20-22	40.1214
10-11	32/10-11	40.0510	8-9	40/8-9	40.0908	22-24		50/22-24	40.1215
11-12	32/11-12	40.0511	9-10	40/9-10	40.0909	24-26		50/24-26	40.1216
12-13	32/12-13	40.0512	10-11	40/10-11	40.0910	26-28		50/26-28	40.1217
13-14	32/13-14	40.0513	11-12	40/11-12	40.0911	28-29		50/28-29	40.1218
14-15	32/14-15	40.0514	12-14	40/12-14	40.0912	29-30		50/29-30	40.1219
15-16	32/15-16	40.0515	14-16	40/14-16	40.0913	30-31		50/30-31	40.1220
16	32/16	40.0516	16-18	40/16-18	40.0914	31-32		50/31-32	40.1221





cable/ pipe diamete	er	plug type	article number	cable/ pipe diame		plug type	article number	cable/ pipe diame	ter	plug type	article number
32		50/32	40.1222	40		57/40	40.1526	30-32		68/30-32	40.1919
52		50/52 50 multi is max.		blind		60/0	40.1600	32-34 34-36		68/32-34 68/34-36	40.1919 40.1920 40.1921
blind		53/0	40.1300	14-16		60/0 60/14-16	40.1600	36-38		68/36-38	40.1921
6-7		53/6-7	40.1305	16-18		60/16-18	40.1612	38-40		68/38-40	40.1923
7-8		53/7-8	40.1306	18-20		60/18-20	40.1613	40-42		68/40-42	40.1924
8-9		53/8-9	40.1307	20-22		60/20-22	40.1614	42-44		68/42-44	40.1925
9-10		53/9-10	40.1308	22-24		60/22-24	40.1615	44-46		68/44-46	40.1926
10-12		53/10-12	40.1309	24-26		60/24-26	40.1616	46-48		68/46-48	40.1927
12-14		53/12-14	40.1310	26-28		60/26-28	40.1617	48-50		68/48-50	40.1928
14-16		53/14-16	40.1311	28-30		60/28-30	40.1618	50		68/50	40.1929
16-18		53/16-18	40.1312	30-32		60/30-32	40.1619			68 multi is ma	x. 2x22, 3x12, 5x12
18-20		53/18-20	40.1313	32-34		60/32-34	40.1620				, - , -
20-22		53/20-22	40.1314	34-36		60/34-36	40.1621	blind		70/0	40.2000
22-24		53/22-24	40.1315	36-37		60/36-37	40.1622	20-22		70/20-22	40.2014
24-26		53/24-26	40.1316	37-38		60/37-38	40.1623	22-24		70/22-24	40.2015
26-28		53/26-28	40.1317	38-39		60/38-39	40.1624	24-26		70/24-26	40.2016
28-30	ш	53/28-30	40.1318	39-40	ш	60/39-40	40.1625	26-28	ш	70/26-28	40.2017
30-31 31-32	<i>u u</i>	53/30-31	40.1319	40	<i>u u</i>	60/40	40.1626	28-30 30-32	in mm	70/28-30	40.2018
31-32	IS İ	53/31-32 53/32-33	40.1320 40.1321		ıs i	60 multi is ma	x. 2x15, 3x10	30-32 32-34	ıs i	70/30-32 70/32-34	40.2019 40.2020
33-34	all dimensions in mm	53/33-34	40.1321	blind	all dimensions in mm	62/0	40.1700	32-34 34-36	dimensions	70/32-34	40.2020
34	sue	53/34	40.1323	14-16	sue	62/14-16	40.1711	36-38	sue	70/36-38	40.2021
01	ine.			16-18	ime	62/16-18	40.1712	38-40	ine	70/38-40	40.2023
	ll d	53 multi is max.	. 2x15, 3x10, 5x10	18-20	ll d	62/18-20	40.1713	40-42	all d	70/40-42	40.2024
blind	ø	55/0	40.1400	20-22	ø	62/20-22	40.1714	42-44	a	70/42-44	40.2025
6-7		55/6-7	40.1405	22-24		62/22-24	40.1715	44-46		70/44-46	40.2026
7-8		55/7-8	40.1406	24-26		62/24-26	40.1716	46-48		70/46-48	40.2027
8-9		55/8-9	40.1407	26-28		62/26-28	40.1717	48-50		70/48-50	40.2028
9-10		55/9-10	40.1408	28-30		62/28-30	40.1718	50		70/50	40.2029
10-12		55/10-12	40.1409	30-32		62/30-32	40.1719			70 multi is ma	x. 2x22, 3x12
12-14		55/12-14	40.1410	32-34		62/32-34	40.1720				
14-16		55/14-16	40.1411	34-36		62/34-36	40.1721	blind		75/0	40.2100
16-18		55/16-18	40.1412	36-37		62/36-37	40.1722	22-24		75/22-24	40.2115
18-20 20-22		55/18-20 55/20-22	40.1413 40.1414	37-38 38-39		62/37-38 62/38-39	40.1723 40.1724	24-26 26-28		75/24-26 75/26-28	40.2116 40.2117
20-22		55/20-22 55/22-24	40.1414	38-39 39-40		62/39-40	40.1724	28-30		75/28-30	40.2117
22-24		55/24-26	40.1415	39-40 40		62/40	40.1725	30-32		75/30-32	40.2118
26-28		55/26-28	40.1417	40				32-34		75/32-34	40.2120
28-30		55/28-30	40.1418			62 multi is ma	x. 2x15, 3x10	34-36		75/34-36	40.2121
30-31		55/30-31	40.1419	blind		67/0	40.1800	36-38		75/36-38	40.2122
31-32		55/31-32	40.1420	22-24		67/22-24	40.1815	38-40		75/38-40	40.2123
32-33		55/32-33	40.1421	24-26		67/24-26	40.1816	40-42		75/40-42	40.2124
33-34		55/33-34	40.1422	26-28		67/26-28	40.1817	42-44		75/42-44	40.2125
34		55/34	40.1423	28-30		67/28-30	40.1818	44-46		75/44-46	40.2126
		55 multi is max.	2x15, 3x10, 5x10	30-32		67/30-32	40.1819	46-48		75/46-48	40.2127
hit of		57/0	40.4500	32-34		67/32-34	40.1820	48-50		75/48-50	40.2128
blind		57/0 57/14 16	40.1500	34-36		67/34-36	40.1821	50		75/50	40.2129
14-16		57/14-16	40.1511	36-38		67/36-38	40.1822	blind		79/0	40.0000
16-18 18-20		57/16-18 57/18-20	40.1512	38-40 40-42		67/38-40 67/40-42	40.1823	blind 22-24		78/0 78/22-24	40.2200 40.2215
20-22		57/18-20 57/20-22	40.1513 40.1514	40-42 42-44		67/40-42 67/42-44	40.1824 40.1825	22-24 24-26		78/22-24 78/24-26	40.2215 40.2216
20-22		57/20-22 57/22-24	40.1514	42-44 44-46		67/42-44 67/44-46	40.1825	24-20		78/26-28	40.2216
22-24		57/24-26	40.1515	46-48		67/46-48	40.1820	28-30		78/28-30	40.2217
26-28		57/26-28	40.1517	48-50		67/48-50	40.1828	30-32		78/30-32	40.2219
28-30		57/28-30	40.1518	-10 00 50		67/50	40.1829	32-34		78/32-34	40.2220
30-32		57/30-32	40.1519					34-36		78/34-36	40.2221
32-34		57/32-34	40.1520	blind		68/0	40.1900	36-38		78/36-38	40.2222
34-36		57/34-36	40.1521	20-22		68/20-22	40.1914	38-40		78/38-40	40.2223
36-37		57/36-37	40.1522	22-24		68/22-24	40.1915	40-42		78/40-42	40.2224
37-38		57/37-38	40.1523	24-26		68/24-26	40.1916	42-44		78/42-44	40.2225
38-39		57/38-39	40.1524	26-28		68/26-28	40.1917	44-46		78/44-46	40.2226
39-40		57/39-40	40.1525	28-30		68/28-30	40.1918	46-48		78/46-48	40.2227





cable/ pipe diamet		plug type	article number	cable/ pipe diame		plug type	article number	cable/ pipe diame	er	plug type	article number
48-50		78/48-50	40.2228	blind		94/0	40.2600	60-62		102/60-62	40.2930
50-52		78/50-52	40.2229	40-42		94/40-42	40.2620	62-64		102/62-64	40.2931
52-53		78/52-53	40.2230	42-44		94/42-44	40.2621	64-66		102/64-66	40.2932
53-54		78/53-54	40.2231	44-46		94/44-46	40.2622	66-68		102/66-68	40.2933
54		78/54	40.2232	46-48		94/46-48	40.2623	68-70		102/68-70	40.2934
		78 multi is max.	2x22, 3x15, 5x15	48-50		94/48-50	40.2624	70-72		102/70-72	40.2935
			,	50-52		94/50-52	40.2625	72-74		102/72-74	40.2936
blind		80/0	40.2300	52-54		94/52-54	40.2626	74-75		102/74-75	40.2937
28-30		80/28-30	40.2318	54-56		94/54-56	40.2627	75		102/75	40.2938
30-32		80/30-32	40.2319	56-58		94/56-58	40.2628				
32-34		80/32-34	40.2320	58-60		94/58-60	40.2629	blind		103/0	40.3000
34-36		80/34-36	40.2321	60-62		94/60-62	40.2630	26-28		103/26-28	40.3013
36-38		80/36-38	40.2322	62-64		94/62-64	40.2631	28-30		103/28-30	40.3014
38-40		80/38-40	40.2323	64		94/64	40.2632	40-42		103/40-42	40.3020
40-42		80/40-42	40.2324					42-44		103/42-44	40.3021
42-44		80/42-44	40.2325	blind		97/0	40.2700	44-46		103/44-46	40.3022
44-46		80/44-46	40.2326	40-42		97/40-42	40.2720	46-48		103/46-48	40.3023
46-48	~	80/46-48	40.2327	42-44	~	97/42-44	40.2721	48-50	~	103/48-50	40.3024
48-50	шш	80/48-50	40.2328	44-46	иц	97/44-46	40.2722	50-52	шш	103/50-52	40.3025
50-52	in I	80/50-52	40.2329	46-48	in I	97/46-48	40.2723	52-54	inr	103/52-54	40.3026
52-54	ı SL	80/52-54	40.2330	48-50	' SL	97/48-50	40.2724	54-56	JS ,	103/54-56	40.3027
54-56	all dimensions in	80/54-56	40.2331	50-52	all dimensions in mm	97/50-52	40.2725	56-58	dimensions	103/56-58	40.3028
56-58	SUE	80/56-58	40.2332	52-54	SUE	97/52-54	40.2726	58-60	SUE	103/58-60	40.3029
58-60	in,	80/58-60	40.2333	54-56	ime	97/54-56	40.2727	60-62	ine	103/60-62	40.3030
60	l d	80/60	40.2334	56-58	l d	97/56-58	40.2728	62-64	l d	103/62-64	40.3031
	a	80 multi is max	2x22, 3x15, 5x15	58-60	a	97/58-60	40.2729	64-66	all	103/64-66	40.3032
		oo mana is max.	2,22, 3, 13, 3, 15	60-62		97/60-62	40.2730	66-68		103/66-68	40.3033
blind		82/0	40.2400	62-64		97/62-64	40.2731	68-70		103/68-70	40.3034
28-30		82/28-30	40.2418	64		97/64	40.2732	70-72		103/70-72	40.3035
30-32		82/30-32	40.2419					72-74		103/72-74	40.3036
32-34		82/32-34	40.2420	blind		100/0	40.2800	74-75		103/74-75	40.3037
34-36		82/34-36	40.2421	40-42		100/40-42	40.2820	75		103/75	40.3038
36-38		82/36-38	40.2422	42-44		100/42-44	40.2821				
38-40		82/38-40	40.2423	44-46		100/44-46	40.2822	blind		105/0	40.3100
40-42		82/40-42	40.2424	46-48		100/46-48	40.2823	40-42		105/40-42	40.3120
42-44		82/42-44	40.2425	48-50		100/48-50	40.2824	42-44		105/42-44	40.3121
44-46		82/44-46	40.2426	50-52		100/50-52	40.2825	44-46		105/44-46	40.3122
46-48		82/46-48	40.2427	52-54		100/52-54	40.2826	46-48		105/46-48	40.3123
48-50		82/48-50	40.2428	54-56		100/54-56	40.2827	48-50		105/48-50	40.3124
50-52		82/50-52	40.2429	56-58		100/56-58	40.2828	50-52		105/50-52	40.3125
52-54		82/52-54	40.2430	58-60		100/58-60	40.2829	52-54		105/52-54	40.3126
54-56		82/54-56	40.2431	60-62		100/60-62	40.2830	54-56		105/54-56	40.3127
56-58		82/56-58	40.2432	62-64		100/62-64	40.2831	56-58		105/56-58	40.3128
58-60		82/58-60	40.2433	64-66		100/64-66	40.2832	58-60		105/58-60	40.3129
60		82/60	40.2434	66-68		100/66-68	40.2833	60-62		105/60-62	40.3130
		82 multi is max	2x22, 3x15, 5x15	68-70		100/68-70	40.2834	62-64		105/62-64	40.3131
			,, 0, 0, 0, 0	70-72		100/70-72	40.2835	64-66		105/64-66	40.3132
blind		90/0	40.2500	72-74		100/72-74	40.2836	66-68		105/66-68	40.3133
40-42		90/40-42	40.2520	74-75		100/74-75	40.2837	68-70		105/68-70	40.3134
42-44		90/42-44	40.2521	75		100/75	40.2838	70-72		105/70-72	40.3135
44-46		90/44-46	40.2522					72-74		105/72-74	40.3136
46-48		90/46-48	40.2523	blind		102/0	40.2900	74-75		105/74-75	40.3137
48-50		90/48-50	40.2524	40-42		102/40-42	40.2920	75		105/75	40.3138
50-52		90/50-52	40.2525	42-44		102/42-44	40.2921				
52-54		90/52-54	40.2526	44-46		102/44-46	40.2922	blind		107/0	40.3200
54-56		90/54-56	40.2527	46-48		102/46-48	40.2923	40-42		107/40-42	40.3220
56-58		90/56-58	40.2528	48-50		102/48-50	40.2924	42-44		107/42-44	40.3221
58-60		90/58-60	40.2529	50-52		102/50-52	40.2925	44-46		107/44-46	40.3222
60-62		90/60-62	40.2530	52-54		102/52-54	40.2926	46-48		107/46-48	40.3223
62-64		90/62-64	40.2531	54-56		102/54-56	40.2927	48-50		107/48-50	40.3224
64		90/64	40.2532	56-58		102/56-58	40.2928	50-52		107/50-52	40.3225
		90 multi is max.		58-60		102/58-60	40.2929	52-54		107/52-54	40.3226
		50 mani 15 max.	, 0, 10								





cable/ pipe diameter	plug type	article number	cable/ pipe diamet	er	plug type	article number	cable/ pipe diamete	er	plug type	article number
54-56	107/54-56	40.3227	82-84		122/82-84	40.3541	blind		146/0	40.3900
56-58	107/56-58	40.3228	84-86		122/84-86	40.3542	88-90		146/88-90	40.3920
58-60	107/58-60	40.3229	86-88		122/86-88	40.3543	90-92		146/90-92	40.3921
60-62	107/60-62	40.3230	88-90		122/88-90	40.3544	92-94		146/92-94	40.3922
62-64	107/62-64	40.3231	90-92		122/90-92	40.3545	94-96		146/94-96	40.3923
64-66	107/64-66	40.3232	92		122/92	40.3546	96-98		146/96-98	40.3924
66-68	107/66-68	40.3233					98-100		146/98-100	40.3925
68-70	107/68-70	40.3234	blind		125/0	40.3600	100-102		146/100-102	40.3926
70-72	107/70-72	40.3235	60-62		125/60-62	40.3630	102-104		146/102-104	40.3927
72-74	107/72-74	40.3236	62-64		125/62-64	40.3631	104-106		146/104-106	40.3928
74-75	107/74-75	40.3237	64-66		125/64-66	40.3632	106-108		146/106-108	40.3929
75-76	107/75-76	40.3238	66-68		125/66-68	40.3633	108-110		146/108-110	40.3930
76	107/76	40.3239	68-70		125/68-70	40.3634	110-112		146/110-112	40.3931
blind	110/0	40.3300	70-72 72-74		125/70-72	40.3635	112-114		146/112-114	40.3932
blind 48-50	110/48-50	40.3300	72-74 74-76		125/72-74 125/74-76	40.3636 40.3637	114-116 116-118		146/114-116 146/116-118	40.3933 40.3934
48-50 50-52	110/50-52	40.3324	74-76		125/74-76	40.3638	118-120		146/118-118	40.3934 40.3935
52-54	110/52-54	40.3326	78-80		125/78-80	40.3639	120		146/120	40.3935
54-56 E	110/54-56	40.3327	80-82	ш	125/80-82	40.3640	120	ш		-0.0000
56-58 .5	110/56-58	40.3328	82-84	цц	125/82-84	40.3641	blind	цц	150/0	40.4000
58-60 s	110/58-60	40.3329	84-86	i St	125/84-86	40.3642	88-90	i St	150/88-90	40.4020
54-56 mm	110/60-62	40.3330	86-88	all dimensions in mm	125/86-88	40.3643	90-92	dimensions in mm	150/90-92	40.4021
62-64	110/62-64	40.3331	88-90	sue	125/88-90	40.3644	92-94	sue	150/92-94	40.4022
64-66 <u>Ĕ</u>	110/64-66	40.3332	90-92	lime	125/90-92	40.3645	94-96	lime	150/94-96	40.4023
66-68	110/66-68	40.3333	92	ll a	125/92	40.3646	96-98	all o	150/96-98	40.4024
66-70	110/68-70	40.3334		æ			98-100	æ	150/98-100	40.4025
70-72	110/70-72	40.3335	blind		128/0	40.3700	100-102		150/100-102	40.4026
72-74	110/72-74	40.3336	60-62		128/60-62	40.3730	102-104		150/102-104	40.4027
74-76 76-78	110/74-76 110/76-78	40.3337	62-64 64-66		128/62-64	40.3731	104-106		150/104-106	40.4028
78-80	110/78-80	40.3338 40.3339	66-68		128/64-66 128/66-68	40.3732 40.3733	106-108 108-110		150/106-108 150/108-110	40.4029 40.4030
80	110/80	40.3340	68-70		128/68-70	40.3734	110-112		150/110-112	40.4030
	110/00	40.0040	70-72		128/70-72	40.3735	112-114		150/112-114	40.4032
blind	118/0	40.3400	72-74		128/72-74	40.3736	114-116		150/114-116	40.4033
60-62	118/60-62	40.3430	74-76		128/74-76	40.3737	116-118		150/116-118	40.4034
62-64	118/62-64	40.3431	76-78		128/76-78	40.3738	118-120		150/118-120	40.4035
64-66	118/64-66	40.3432	78-80		128/78-80	40.3739	120-122		150/120-122	40.4036
66-68	118/66-68	40.3433	80-82		128/80-82	40.3740	122-124		150/122-124	40.4037
68-70	118/68-70	40.3434	82-84		128/82-84	40.3741	124-125		150/124-125	40.4038
70-72	118/70-72	40.3435	84-86		128/84-86	40.3742	125		150/125	40.4039
72-74	118/72-74	40.3436	86-88		128/86-88	40.3743	In the st		150/0	40 4400
74-76	118/74-76	40.3437	88-90		128/88-90	40.3744	blind		152/0	40.4100
76-78 78-80	118/76-78 118/78-80	40.3438 40.3439	90-92 92		128/90-92 128/92	40.3745 40.3746	88-90 90-92		152/88-90 152/90-92	40.4120 40.4121
80-82	118/80-82	40.3439	52		120/92	40.3740	90-92 92-94		152/90-92	40.4121 40.4122
82-84	118/82-84	40.3440	blind		131/0	40.3800	92-94 94-96		152/92-94	40.4122
84-86	118/84-86	40.3442	60-62		131/60-62	40.3830	96-98		152/96-98	40.4124
86-88	118/86-88	40.3443	62-64		131/62-64	40.3831	98-100		152/98-100	40.4125
88-90	118/88-90	40.3444	64-66		131/64-66	40.3832	100-102		152/100-102	40.4126
90	118/90	40.3445	66-68		131/66-68	40.3833	102-104		152/102-104	40.4127
			68-70		131/68-70	40.3834	104-106		152/104-106	40.4128
blind	122/0	40.3500	70-72		131/70-72	40.3835	106-108		152/106-108	40.4129
60-62	122/60-62	40.3530	72-74		131/72-74	40.3836	108-110		152/108-110	40.4130
62-64	122/62-64	40.3531	74-76		131/74-76	40.3837	110-112		152/110-112	40.4131
64-66	122/64-66	40.3532	76-78		131/76-78	40.3838	112-114		152/112-114	40.4132
66-68	122/66-68	40.3533	78-80		131/78-80	40.3839	114-116		152/114-116	40.4133
68-70	122/68-70	40.3534	80-82		131/80-82	40.3840	116-118		152/116-118	40.4134
70-72 72-74	122/70-72 122/72-74	40.3535 40.3536	82-84 84-86		131/82-84 131/84-86	40.3841 40.3842	118-120 120-122		152/118-120 152/120-122	40.4135 40.4136
72-74	122/72-74	40.3536	86-88		131/86-88	40.3842	120-122		152/120-122	40.4136 40.4137
76-78	122/76-78	40.3538	88-90		131/88-90	40.3844	124-125		152/124-125	40.4138
78-80	122/78-80	40.3539	90-92		131/90-92	40.3845	125		152/125	40.4139
80-82	122/80-82	40.3540	92		131/92	40.3846	-			





$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
116.118154/118-11840.4234114-116200/11440.4623118-120154/120-12240.4235120-122200/12040.4626120-122154/120-12240.4235120-122200/12540.4628122-124154/122-12440.4237133-135125-127200/13340.4632124-125154/124-12540.4239133-1351200/13340.463340.4633125154/124-12540.4239139-1419200/13940.4633125156/040.4300159-1619200/13940.4633125156/08-9040.4320159-1619203/1040.472090-92156/92-9440.4321110-11216203/11440.472394-96156/94-9640.4323125-127203/12540.473398-100156/98-10040.4325139-141203/13940.4733100-102156/100-10240.4326141-143203/13940.4734104-106156/108-11040.4329168-170203/16840.4748106-108156/108-11040.4331110-112207/1040.4820112-114156/118-11840.4333125-127207/12540.4823112-114156/118-12040.4333133-135207/13340.4833112-122156/12-12240.4335139-141207/15940.4843112-122156/12-12240.4335139-141207/15940.4833112-112156/118-120	,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	eter
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
92-94 156/92-94 40.4322 114-116 203/114 40.4723 94-96 156/94-96 40.4323 125-127 203/125 40.4728 96-98 156/96-98 40.4324 133-135 203/133 40.4731 98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 168-170 203/168 40.4748 108-110 156/108-110 40.4330 blind 207/0 40.4800 110-112 156/110-112 40.4332 114-116 207/110 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4335 139-141 207/133 40.4833 118-120 156/118-120 40.4335 139-141 207/1	
92-94 156/92-94 40.4322 114-116 203/114 40.4723 94-96 156/94-96 40.4323 125-127 203/125 40.4728 96-98 156/96-98 40.4324 133-135 203/133 40.4731 98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 100-112 207/0 40.4800 110-112 156/10-112 40.4331 110-112 207/110 40.4820 110-112 156/110-112 40.4332 114-116 207/114 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4335 139-141 207/133 40.4833 118-120 156/118-120 40.4335 139-141 207/	
92-94 156/92-94 40.4322 114-116 203/114 40.4723 94-96 156/94-96 40.4323 125-127 203/125 40.4728 96-98 156/96-98 40.4324 133-135 203/133 40.4731 98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 100-112 207/0 40.4800 110-112 156/10-112 40.4331 110-112 207/110 40.4820 110-112 156/110-112 40.4332 114-116 207/114 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4335 139-141 207/133 40.4833 118-120 156/118-120 40.4335 139-141 207/	
92-94 156/92-94 40.4322 114-116 203/114 40.4723 94-96 156/94-96 40.4323 125-127 203/125 40.4728 96-98 156/96-98 40.4324 133-135 203/133 40.4731 98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 168-170 203/168 40.4748 108-110 156/108-110 40.4330 blind 207/0 40.4800 110-112 156/110-112 40.4332 114-116 207/110 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4335 139-141 207/133 40.4833 118-120 156/118-120 40.4335 139-141 207/1	
94-96 156/94-96 40.4323 125-127 203/125 40.4728 96-98 156/96-98 40.4324 133-135 203/133 40.4731 98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/100-102 40.4326 141-143 203/159 40.4743 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4328 168-170 203/168 40.4748 106-108 156/106-108 40.4329	
96-98 156/96-98 40.4324 133-135 203/133 40.4731 98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4328 168-170 203/168 40.4748 106-108 156/106-108 40.4329 0	~ 1
98-100 156/98-100 40.4325 139-141 203/139 40.4733 100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4328 168-170 203/168 40.4748 106-108 156/106-108 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 110-112 207/0 40.4800 110-112 156/110-112 40.4331 110-112 207/110 40.4823 112-114 156/112-114 40.4332 114-116 207/114 40.4823 114-116 156/114-116 40.4333 125-127 207/125 40.4828 116-118 156/118-120 40.4335 139-141 207/133 40.4833 118-120 156/118-120 40.4335 139-141 207/159 40.4843 120-122 156/120-122 40.4336 159-161 207/159 40.4843 type code: series/3xcable diame <td></td>	
100-102 156/100-102 40.4326 141-143 203/141 40.4734 102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4328 168-170 203/168 40.4748 106-108 156/106-108 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 100-112 207/0 40.4800 110-112 156/110-112 40.4331 110-112 207/110 40.4820 112-114 156/112-114 40.4332 114-116 207/114 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4334 133-135 207/133 40.4831 118-120 156/118-120 40.4335 139-141 207/159 40.4843 type code: series/3xcable diame 120-122 156/120-122 40.4336 159-161 207/159 40.4843 type code: series/3xcable diame	
102-104 156/102-104 40.4327 159-161 203/159 40.4743 104-106 156/104-106 40.4328 168-170 203/168 40.4748 106-108 156/106-108 40.4329 168-170 203/168 40.4748 106-108 156/106-108 40.4329 0 0 0 0 110-112 156/108-110 40.4330 0 0 0 40.4800 110-112 156/110-112 40.4331 110-112 207/110 40.4820 0 112-114 156/112-114 40.4332 114-116 207/114 40.4823 0 112-114 156/112-114 40.4333 125-127 207/125 40.4828 0 114-116 156/114-116 40.4334 133-135 207/133 40.4831 0 118-120 156/118-120 40.4335 139-141 207/159 40.4843 type code: series/3xcable diame 120-122 156/120-122 40.4336 159-161 207/159 40.4843 50.4843	
106-108 156/106-108 40.4329 108-110 156/108-110 40.4330 110-112 156/108-110 40.4331 110-112 156/110-112 40.4331 112-114 156/112-114 40.4332 114-116 156/112-114 40.4333 114-116 156/114-116 40.4333 114-116 156/114-116 40.4333 116-118 156/116-118 40.4334 118-120 156/118-120 40.4335 120-122 156/120-122 40.4336 159-161 207/159 40.4843 type code: series/3xcable diameters/3xcable diameter	1
108-110 156/108-110 40.4330 blind 207/0 40.4800 110-112 156/110-112 40.4331 110-112 207/110 40.4820 112-114 156/112-114 40.4332 114-116 207/114 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4334 133-135 207/133 40.4831 118-120 156/118-120 40.4335 139-141 207/159 40.4843 120-122 156/120-122 40.4336 159-161 207/159 40.4843	
110-112 156/110-112 40.4331 110-112 207/110 40.4820 112-114 156/112-114 40.4332 114-116 207/114 40.4823 114-116 156/112-114 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4334 133-135 207/133 40.4831 118-120 156/118-120 40.4335 139-141 207/139 40.4833 120-122 156/120-122 40.4336 159-161 207/159 40.4843 type code: series/3xcable diameters/3xcable diameters/3xcabl	
112-114 156/112-114 40.4332 114-116 207/114 40.4823 114-116 156/114-116 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4334 133-135 207/133 40.4831 118-120 156/118-120 40.4335 139-141 207/139 40.4833 120-122 156/120-122 40.4336 159-161 207/159 40.4843	1
114-116 156/114-116 40.4333 125-127 207/125 40.4828 116-118 156/116-118 40.4334 133-135 207/133 40.4831 118-120 156/118-120 40.4335 139-141 207/139 40.4833 120-122 156/120-122 40.4336 159-161 207/159 40.4843	
116-118 156/116-118 40.4334 133-135 207/133 40.4831 118-120 156/118-120 40.4335 139-141 207/139 40.4833 120-122 156/120-122 40.4336 159-161 207/159 40.4843	/
118-120 156/118-120 40.4335 139-141 207/139 40.4833 120-122 156/120-122 40.4336 159-161 207/159 40.4843 type code: series/3xcable diame	
122-124 156/122-124 40/335 168-170 207/168 40/4848 For instance 40/336-7	eter
124-125 156/124-125 40.4338 125 156/125 40.4339 160-162 250/160 40.5010	
125 156/125 40.4339 160-162 250/160 40.5010 168-170 250/168 40.5014	
blind 160/0 40.4400 171-173 250/171 40.5015	
88-90 160/88-90 40.4420 200-202 250/200 40.5030	
90-92 160/90-92 40.4421	1 A
92-94 160/92-94 40.4422 160-162 260/160 40.5210	-
94-96 160/94-96 40.4423 219-221 260/219 40.5239	
96-98 160/96-98 40.4424 98-100 160/98-100 40.4425 200-202 300/200 40.5321	
98-100 160/98-100 40.4425 200-202 300/200 40.5321 100-102 160/100-102 40.4426 250-252 300/250 40.5346	
102-104 160/102-104 40.4427	1
102-104 100/102-104 40.4428 * the series 190 up to 340 are made upon	
106-108 160/106-108 40.4429 customer request. The listed sizes are	1
108-110 160/108-110 40.4430 available. For other sizes, please contact	
110-112 160/110-112 40.4431 our sales department.	
112-114 160/112-114 40.4432	
114-116 160/114-116 40.4433 116-118 160/116-118 40.4434	1
118-110 160/118-120 40.4435	
120-122 160/120-122 40.4436 type code: series/5xcable diamo	
122-124 160/122-124 40.4437 For instance 40/5x6-7	əter

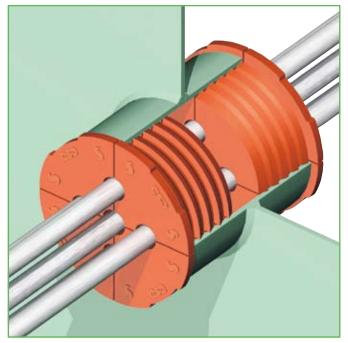




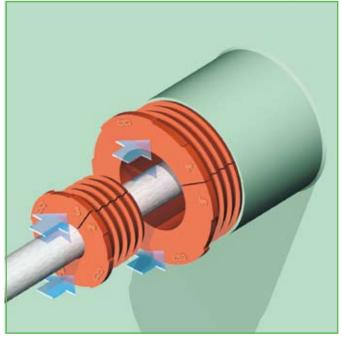




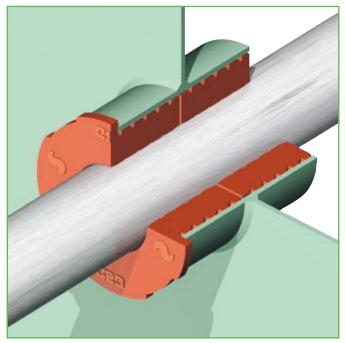




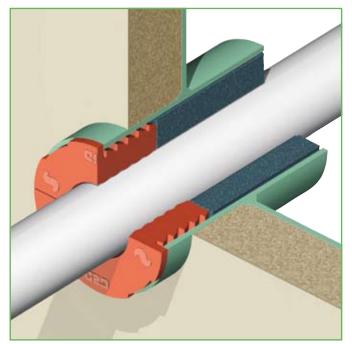
Several options are available with the SLIPSIL[®] plugs. Especially for hydraulic and pneumatic lines, a series of SLIPSIL[®] multi-sealing plugs have been developed to enable ducting of 2 - 5 same diameter pipes.



SLIPSIL[®] adapter plugs can be used in cases where conduit sleeves are much larger than the service pipe OD, and no individual sealing plug is available. A SLIPSIL[®] adapter plug with a standard SLIPSIL[®] plug offers the solution.



In case there is no access to install the sealing plugs from both sides, a solution has been found to install a combination of DYNATITE® and SLIPSIL® plugs. The flange of the DYNATITE® plug fits inside, and is inserted deeply into, the conduit sleeve. The SLIPSIL® sealing plug is then installed on top of the DYNATITE® plug.



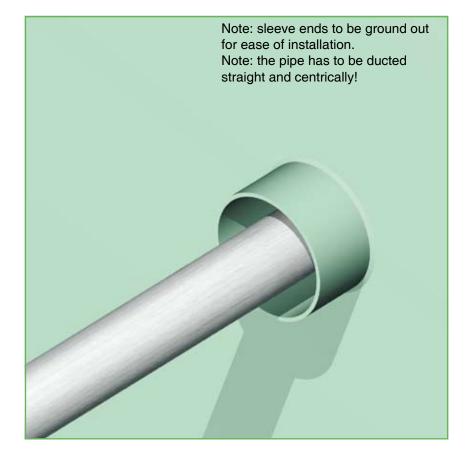
For plastic pipe penetrations, a combination of the SLIPSIL[®] sealing plugs and the RISE[®]/ULTRA crushers can be used.

Instead of RISE[®]/ULTRA crushers, RISE[®]/ULTRA wraps can be used. Note: the RISE[®]/ULTRA wraps are 2.5 mm thick and have to be wrapped to the required thickness.



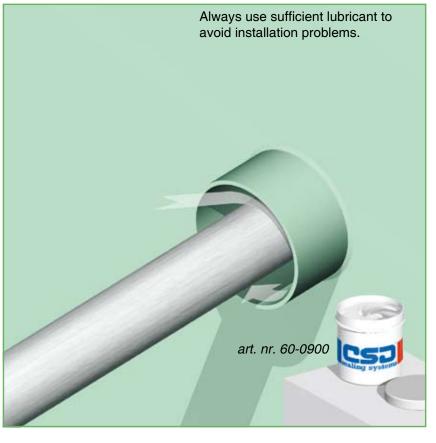


 Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve.
 For ease of installation, it is advisable to grind out the front side of the sleeve.



slipsil

2) Then the inside wall of the conduit sleeve is treated with CSD[®] lubricant along a distance which approximately corresponds to the length of the sealing plug.







3) The inside surfaces of both segments of the SLIPSIL[®] sealing plug are then treated with CSD[®] lubricant.

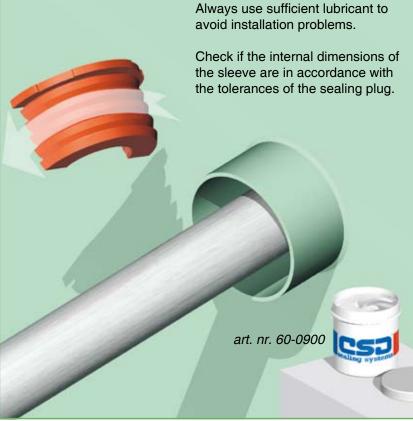
For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.



slipsil

4) The segments of the SLIPSIL[®] sealing plug are also treated with CSD[®] lubricant on the outside. Please refer to the Safety Data Sheet of the CSD[®] lubricant for more information.

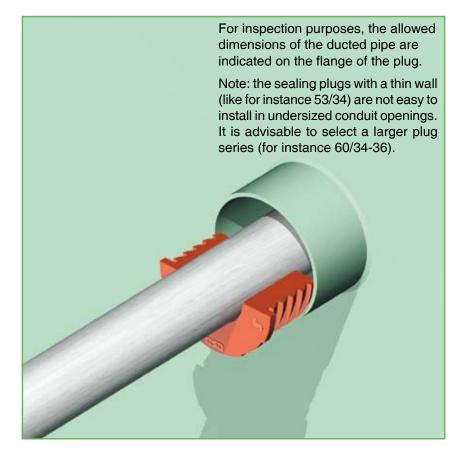
slipsil







5) Both segments of the SLIPSIL[®] sealing plug are placed around the ducted pipe and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

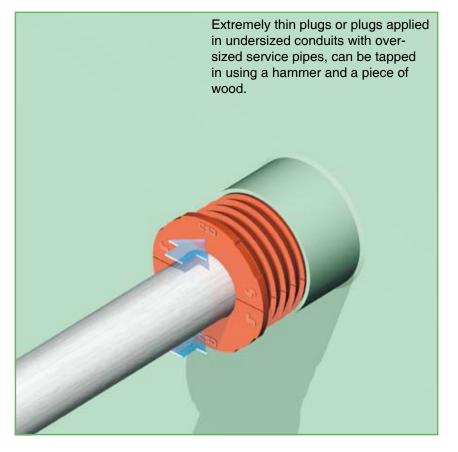


slipsil

6) Then both segments of the SLIPSIL[®] sealing plug are pushed by hand evenly, serration by serration, further into the conduit sleeve.

For fire rated conduits, the plugs have to be applied at both sides. During insertion of the second plug, the air between both plugs will be compressed, and has to be released from time to time, by inserting a screw driver between both plug halves.

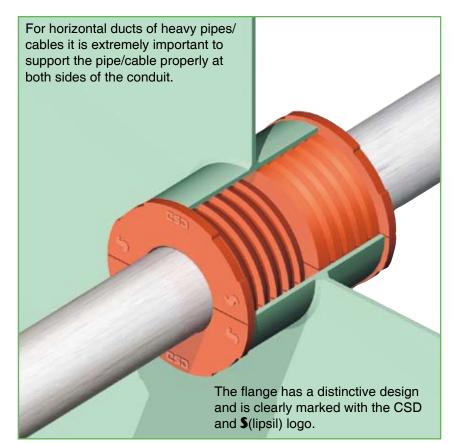








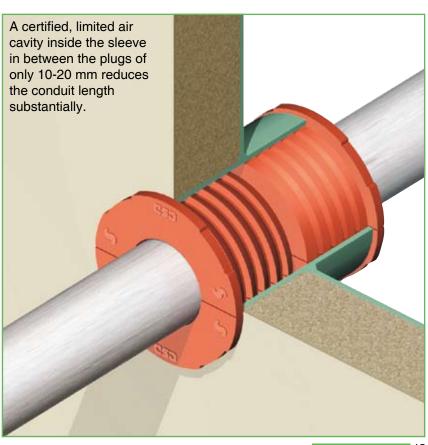
7) The flanged edges of the sealing plugs must be flush against the front side of the conduit sleeve at both sides. Note: tightness and installation are optimum at nominal sizes (for instance for 60/34-36 optimum is 60 mm ID of the sleeve and 34 mm OD of the ducted pipe).



slipsil

8) For A-class penetrations (which are insulated), the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipe has to be insulated according to the specifications on the certified drawings.

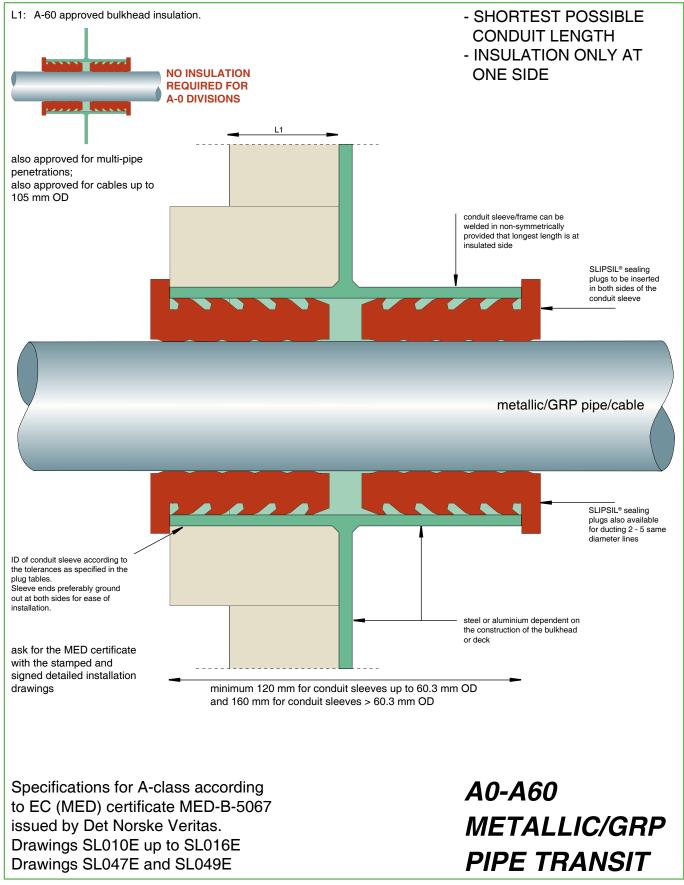






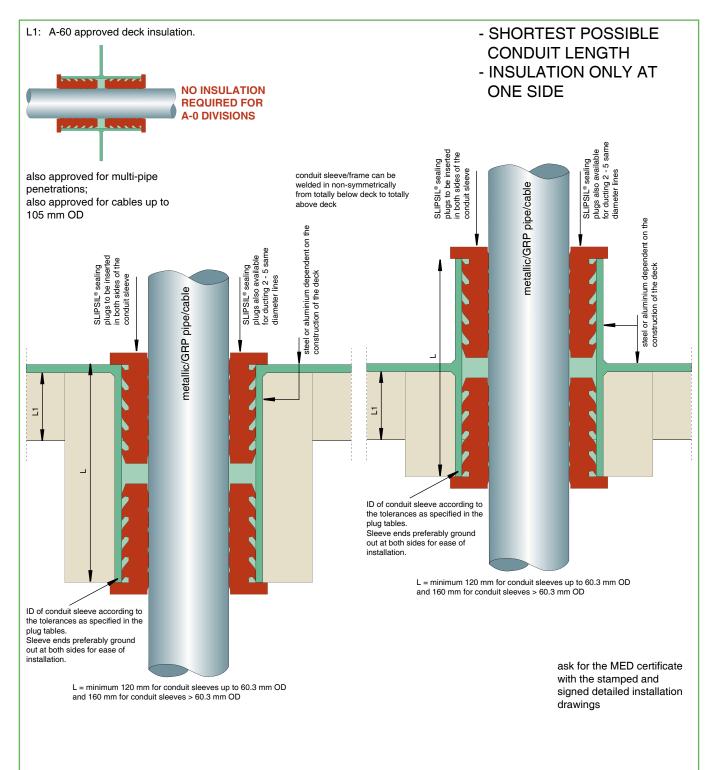


SLIPSIL[®] SEALING PLUGS FOR PIPE/CABLE ENTRIES









Specifications for A-class according to EC (MED) certificate MED-B-5067 issued by Det Norske Veritas. Drawings SL010E up to SL016E Drawings SL047E and SL049E A0-A60 METALLIC/GRP PIPE TRANSIT





cable/ pipe diame		plug type	article number	cable/ pipe diame		plug type	article number	cable/ pipe diameter	plug type	article number
6-7		40/2x6-7	40.0926	11-12		68/2x11-12	40.1936	15-16	90/2x15-16	40.2541
7-8		40/2x7-8	40.0927	12-13		68/2x12-13	40.1937	16-17	90/2x16-17	40.2542
8-9		40/2x8-9	40.0928	13-14		68/2x13-14	40.1938	17-18	90/2x17-18	40.2543
9-10		40/2x9-10	40.0928	13-14		68/2x14-15	40.1938	18-19		40.2543
10-11		40/2x9-10 40/2x10-11	40.0929	15-16		68/2x15-16	40.1939	19-20	90/2x18-19 90/2x19-20	40.2545
10-11		40/2810-11	40.0930	16-17		68/2x16-17	40.1940	20-21	90/2x19-20 90/2x20-21	40.2545
6-7		41/2x6-7	40.1026	17-18		68/2x17-18	40.1941	21-22	90/2x20-21 90/2x21-22	40.2540
7-8		41/2x7-8	40.1020	18-19		68/2x18-19	40.1942	22-23	90/2x21-22 90/2x22-23	40.2548
8-9		41/2x8-9	40.1027	19-20		68/2x19-20	40.1943	23-24	90/2x22-23	40.2548
9-10		41/2x9-10	40.1020	20-21		68/2x20-21	40.1944	24-25	90/2x24-25	40.2550
10-11		41/2x10-11	40.1020	21-22		68/2x21-22	40.1946	25-26	90/2x25-26	40.2551
10 11			40.1000	22-23		68/2x22-23	40.1947	20 20	00/2220 20	40.2001
6-7		43/2x6-7	40.1126	22 20		00/2222 20	40.1047			
7-8		43/2x7-8	40.1127	11-12		70/2x11-12	40.2036			
8-9		43/2x8-9	40.1128	12-13		70/2x12-13	40.2030	* multi-pluas	for other plug ser	ries are made
9-10		43/2x9-10	40.1129	13-14		70/2x12-13	40.2038		er request. The li	
10-11		43/2x10-11	40.1130	14-15		70/2x14-15	40.2039		items. For other	
1011		10/2/10 11	10.1100	15-16		70/2x15-16	40.2039		ales department.	oizee, piedee
6-7	Ē	50/2x6-7	40.1231	16-17	ш	70/2x16-17	40.2040	oomaat our o		
7-8	2	50/2x7-8	40.1232	17-18	2 2	70/2x17-18	40.2041			
8-9	S ii	50/2x8-9	40.1233	18-19	s ii	70/2x17-18 70/2x18-19	40.2042			
9-10	ion	50/2x9-10	40.1234	19-20	ion	70/2x19-20	40.2043			
10-11	dimensions in mm	50/2x10-11	40.1235	20-21	all dimensions in mm	70/2x20-21	40.2044			
11-12	ne	50/2x11-12	40.1236	21-22	ne	70/2x21-22	40.2045			
12-13	ij	50/2x12-13	40.1237	22-23	ij	70/2x22-23	40.2040			
13-14	all	50/2x13-14	40.1238	22-20	all	10/2822-20	40.2047			
14-15		50/2x14-15	40.1239	12-13		78/2x12-13	40.2241			
15-16		50/2x15-16	40.1240	13-14		78/2x13-14	40.2242			
		00,2,110 10		14-15		78/2x14-15	40.2242		lti-sealing plugs f	
6-7		53/2x6-7	40.1331	15-16		78/2x15-16	40.2243		meter cables or p	
7-8		53/2x7-8	40.1332	16-17		78/2x16-17	40.2244		or four equal parts	
8-9		53/2x8-9	40.1333	17-18		78/2x17-18	40.2246		led after the cab	
9-10		53/2x9-10	40.1334	18-19		78/2x18-19	40.2247		d. For selecting t	U 1
10-11		53/2x10-11	40.1335	19-20		78/2x19-20	40.2248		g, look for the plu	g series from
11-12		53/2x11-12	40.1336	20-21		78/2x20-21	40.2249	the tables.		
12-13		53/2x12-13	40.1337	21-22		78/2x21-22	40.2250			
13-14		53/2x13-14	40.1338	22-23		78/2x22-23	40.2251			
14-15		53/2x14-15	40.1339			,				
15-16		53/2x15-16	40.1340	12-13		80/2x12-13	40.2341			
				13-14		80/2x13-14	40.2342			
6-7		55/2x6-7	40.1431	14-15		80/2x14-15	40.2343			
7-8		55/2x7-8	40.1432	15-16		80/2x15-16	40.2344			
8-9		55/2x8-9	40.1433	16-17		80/2x16-17	40.2345			
9-10		55/2x9-10	40.1434	17-18		80/2x17-18	40.2346			
10-11		55/2x10-11	40.1435	18-19		80/2x18-19	40.2347			at the
11-12		55/2x11-12	40.1436	19-20		80/2x19-20	40.2348		-	
12-13		55/2x12-13	40.1437	20-21		80/2x20-21	40.2349	100		
13-14		55/2x13-14	40.1438	21-22		80/2x21-22	40.2350		(Const	0.000
14-15		55/2x14-15	40.1439	22-23		80/2x22-23	40.2351	an serve		
15-16		55/2x15-16	40.1440					100	9	
				12-13		82/2x12-13	40.2441		These Descent of the	
11-12		60/2x11-12	40.1636	13-14		82/2x13-14	40.2442			R.
12-13		60/2x12-13	40.1637	14-15		82/2x14-15	40.2443	200		
13-14		60/2x13-14	40.1638	15-16		82/2x15-16	40.2444			2 All
14-15		60/2x14-15	40.1639	16-17		82/2x16-17	40.2445			-
15-16		60/2x15-16	40.1640	17-18		82/2x17-18	40.2446			21
				18-19		82/2x18-19	40.2447			
11-12		62/2x11-12	40.1736	19-20		82/2x19-20	40.2448			
12-13		62/2x12-13	40.1737	20-21		82/2x20-21	40.2449			
13-14		62/2x13-14	40.1738	21-22		82/2x21-22	40.2450			
14-15		62/2x14-15	40.1739	22-23		82/2x22-23	40.2451	tuno codo	series/2xcable c	liametor
15-16		62/2x15-16	40.1740						ce 40/2x6-7	
								For instan	UE 40/2X0-1	





cable/ pipe diame		plug type	article number	cable/ pipe diame		plug type	article number	cable/ pipe diameter	plug type	article number
6-7		40/3x6-7	40.0936	10-11		80/3x10-11	40.2356	10-11	80/5x10-11	40.2366
7-8		40/3x7-8	40.0937	11-12		80/3x11-12	40.2357	11-12	80/5x11-12	40.2367
, 0		40/08/ 0	40.0007	12-13		80/3x12-13	40.2358	12-13	80/5x12-13	40.2368
6-7		41/3x6-7	40.1036	13-14		80/3x13-14	40.2359	13-14	80/5x13-14	40.2369
7-8		41/3x7-8	40.1030	14-15		80/3x14-15	40.2360	14-15	80/5x14-15	40.2309
1-0		41/37/-0	40.1007	15-16		80/3x15-16	40.2361	15-16	80/5x15-16	40.2370
6-7		43/3x6-7	40.1136	15-10		00/3213-10	40.2301	15-10	00/3713-10	40.2371
7-8		43/3x7-8	40.1137	10-11		82/3x10-11	40.2456	10-11	82/5x10-11	40.2466
/-0		43/387-0	40.1137	11-12		82/3x11-12	40.2450	11-12	82/5x11-12	40.2466
6-7		50/3x6-7	40.1241	12-13		82/3x12-13	40.2457	12-13	82/5x12-13	40.2467
7-8		50/3x7-8	40.1241	12-13		82/3x13-14	40.2458	13-14	82/5x13-14	40.2468
8-9		50/3x8-9	40.1242	13-14		82/3x13-14	40.2459	13-14		
0-9		50/380-9	40.1243	14-15		82/3x15-16	40.2460	14-15	82/5x14-15	40.2470
6-7		53/3x6-7	40.1341	15-10		02/3813-10	40.2401	10-10	82/5x15-16	40.2471
7-8		53/3x7-8	40.1341	10-11		90/3x10-11	40.2556	* multi pluco f	or other plug ser	
8-9		53/3x8-9	40.1342	11-12		90/3x11-12				
9-10		53/3x9-10	40.1343				40.2557		er request. The li	
				12-13		90/3x12-13	40.2558		items. For other	
10-11	Е	53/3x10-11	40.1345	13-14	В	90/3x13-14	40.2559		ales department.	
0.7	E		40 1 4 4 1	14-15	Ε	90/3x14-15	40.2560		or the multi-plugs	
6-7	i i	55/3x6-7	40.1441	15-16	i.	90/3x15-16	40.2561		pecials only on re	equest based
7-8	SUC	55/3x7-8	40.1442		ŝ			on quantities.		
8-9	isic	55/3x8-9	40.1443		sic					
9-10	Jer	55/3x9-10	40.1444		je					
10-11	all dimensions in mm	55/3x10-11	40.1445	6-7	all dimensions in mm	40/5x6-7	40.0941			(Ber
	all c	~~~~~	10 10 10	7-8	all	40/5x7-8	40.0942			
6-7		60/3x6-7	40.1646	07			10 10 11	200	Contraction of the local division of the loc	
7-8		60/3x7-8	40.1647	6-7		41/5x6-7	40.1041			
8-9		60/3x8-9	40.1648	7-8		41/5x7-8	40.1042	-		The second
9-10		60/3x9-10	40.1649	07		40/5 0 7	10 11 11		2	
10-11		60/3x10-11	40.1650	6-7		43/5x6-7	40.1141		STREET, MARKET	
0.7		00/0 0 7	40.4740	7-8		43/5x7-8	40.1142			
6-7		62/3x6-7	40.1746	0.7			40 1051			
7-8		62/3x7-8	40.1747	6-7		50/5x6-7	40.1251			2 A
8-9		62/3x8-9	40.1748	7-8		50/5x7-8	40.1252			-
9-10		62/3x9-10	40.1749	8-9		50/5x8-9	40.1253			21
10-11		62/3x10-11	40.1750	0.7			40 1051			
67		60/026 7	40.1951	6-7 7-8		53/5x6-7	40.1351 40.1352			
6-7		68/3x6-7				53/5x7-8				
7-8 8-9		68/3x7-8	40.1952	8-9 9-10		53/5x8-9	40.1353			
		68/3x8-9	40.1953			53/5x9-10	40.1354	type code:	series/3xcable c	liameter
9-10		68/3x9-10	40.1954	10-11		53/5x10-11	40.1355		se 40/3x6-7	
10-11 11-12		68/3x10-11 68/3x11-12	40.1955 40.1956	67		55/5x6-7	40.1451			
12-13		68/3x11-12 68/3x12-13	40.1956 40.1957	6-7 7-8		55/5x6-7 55/5x7-8	40.1451 40.1452			
12-13		00/0812-10	40.1937	7-8 8-9		55/5x8-9	40.1452 40.1453		-	
6-7		70/3x6-7	40.2051	8-9 9-10		55/5x9-10	40.1453		2 -1	-
7-8		70/3x7-8	40.2051	10-11		55/5x10-11	40.1454			
8-9		70/3x8-9	40.2052	10-11		55/5×10-11	-0.1400	12	- the	
9-10		70/3x9-10	40.2053	6-7		68/5x6-7	40.1961	120 -	51	
10-11		70/3x9-10 70/3x10-11	40.2054	7-8		68/5x7-8	40.1961		100	~
11-12		70/3x10-11 70/3x11-12	40.2055	8-9		68/5x8-9	40.1962		-	
12-13		70/3x12-13	40.2054	9-10		68/5x9-10	40.1963			
12.10		10/0712-10	TU.2000	10-11		68/5x10-11	40.1965			
10-11		78/3x10-11	40.2256	11-12		68/5x11-12	40.1965	5		
11-12		78/3x11-12	40.2250	12-13		68/5x12-13	40.1966			
12-13		78/3x12-13	40.2257	12-10		00/0712-10	40.1307			
13-14		78/3x12-13	40.2258	10-11		78/5x10-11	40.2266			
13-14		78/3x13-14 78/3x14-15	40.2259	11-12		78/5x11-12	40.2266		Contraction of the second	
14-15		78/3x15-16	40.2260	12-13		78/5x12-13	40.2267			
15-10		10/0710-10	40.2201	12-13		78/5x12-13	40.2268			
				13-14 14-15		78/5x13-14 78/5x14-15				
				14-15 15-16		78/5x14-15 78/5x15-16	40.2270 40.2271	type code:	series/5xcable of	diameter
				10-10		10/0710-10	70.2211		ce 40/5x6-7	
1										





1) The SLIPSIL[®] multisealing plug for five same diameter lines exists of four equal segments. The inside surfaces of the segments are treated with CSD[®] lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipes.

slipsil

4) The segments are also treated with CSD[®] lubricant on the outside.
Please refer to the Safety
Data Sheet of the CSD[®]
lubricant for more information.





20





3) The segments of the SLIPSIL[®] multi-sealing plug are placed around the ducted pipes and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.

slipsil

4) Then the four segments of the SLIPSIL[®] multisealing plug are pushed by hand evenly, serration by serration, further into the conduit sleeve.

For fire rated conduits, the plugs have to be applied at both sides. During insertion of the second plug, the air between both plugs will be compressed, and has to be released from time to time, by inserting a screw driver between both plug halves.

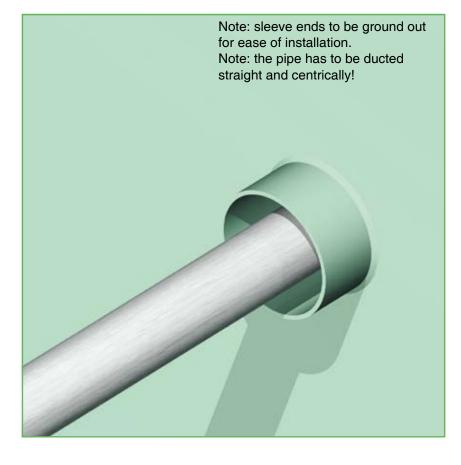


The flange has a distinctive design and is clearly marked with the CSD and \$(lipsil) logo. Also refer to the installation instructions of the single sealing plugs for further finishing.





 Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve.
 For ease of installation, it is advisable to grind out the front side of the sleeve.



slipsil

2) Then the inside wall of the conduit sleeve is treated with CSD[®] lubricant along a distance which approximately corresponds to the length of the SLIPSIL[®]/DYNATITE[®] combination.

slipsil







3) The inside surfaces of both segments of the DYNATITE[®] sealing plug are then treated with CSD[®] lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.

slipsil

4) The segments of the DYNATITE[®] sealing plug are also treated with CSD[®] lubricant on the outside. Please refer to the Safety Data Sheet of the CSD[®] lubricant for more information.

slipsil



Always use sufficient lubricant to avoid installation problems.

Check if the internal dimensions of the sleeve are in accordance with the tolerances of the sealing plug.

Note: the article numbers of the DYNATITE[®] plugs are similar to those of the SLIPSIL[®] plugs: Group number is 45 instead of 40. DT is added for type code. Example: 55/28-30DT - 45.1318

art. nr. 60-0900





5) Both segments of the DYNATITE[®] sealing plug are placed around the ducted pipe, then pushed into the conduit sleeve as far as the first serration.

Both halves are pushed by hand evenly, serration by serration, further into the conduit sleeve. For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.

Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).

slipsil

6) The surfaces of both segments of the SLIPSIL[®] sealing plug are then treated with CSD[®] lubricant all around.

slipsil

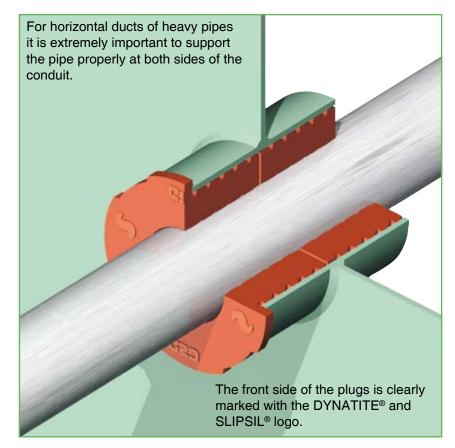






7) Both segments of the SLIPSIL[®] sealing plug are then installed in the same way as the DYNATITE[®] plug.

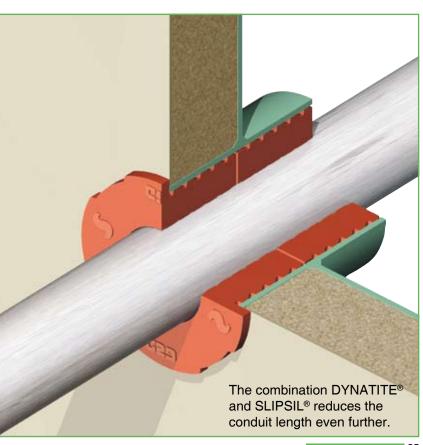
Note: for fire rated conduits, both plugs have to be applied. During insertion of the second plug, the air between both plugs will be compressed, and has to be released from time to time, by inserting a screw driver between both plug halves.



slipsil

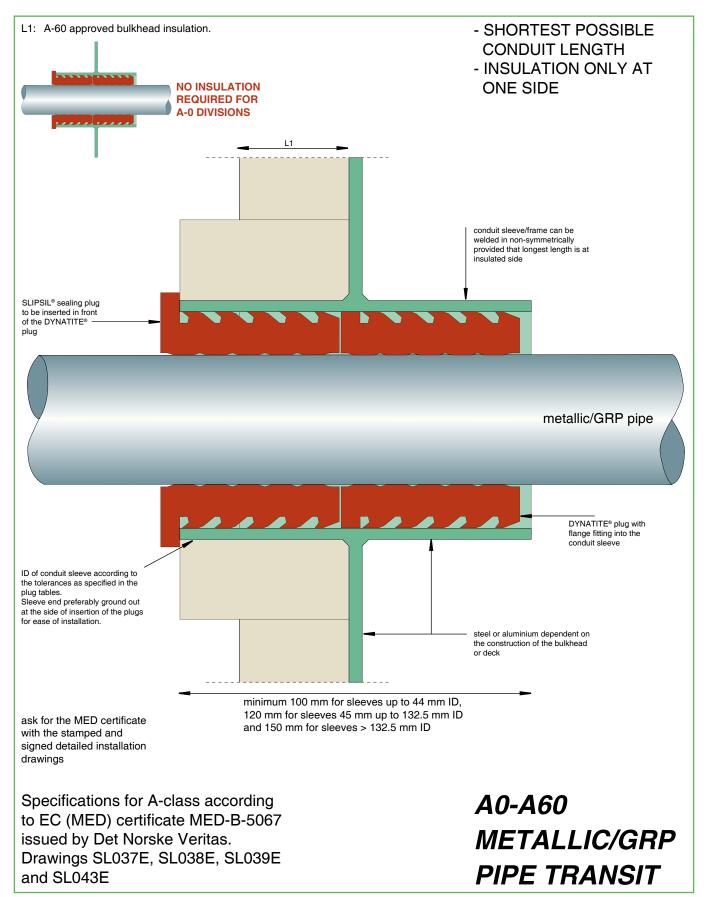
8) For A-class penetrations (which are insulated), the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipe has to be insulated according to the specifications on the certified drawings.





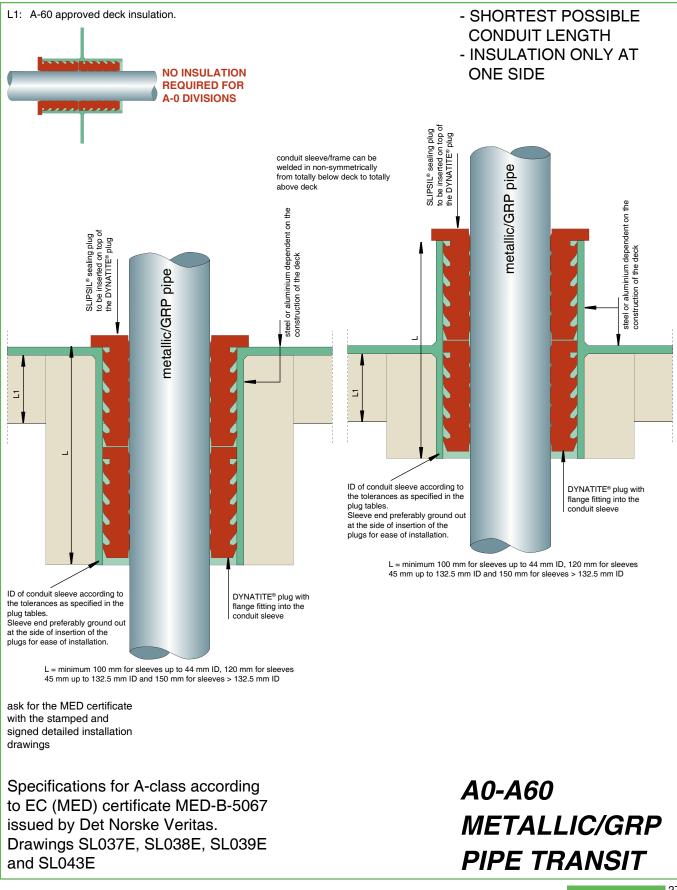
















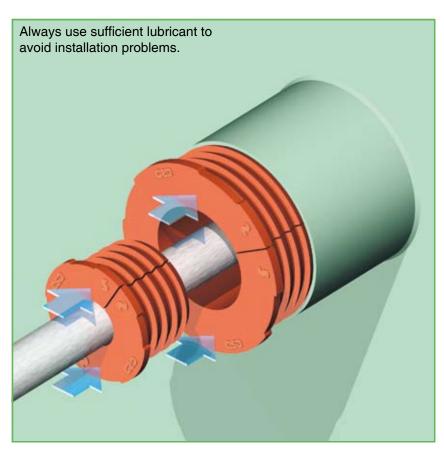
SLIPSIL® ADAPTER PLUGS FOR OVERSIZED PIPE/CABLE ENTRIES



plug type	article number	plug type	article number
68/40AD	40.1995	118/80AD	40.3495
70/40AD	40.2095	122/80AD	40.3595
75/40AD	40.2195	125/80AD	40.3695
78/50AD	40.2295	128/80AD	40.3795
80/50AD	40.2395	131/80AD	40.3895
82/50AD	40.2495	146/118AD	40.3995
90/60AD	40.2595	150/118AD	40.4095
94/60AD	40.2695	152/118AD	40.4195
97/60AD	40.2795	154/118AD	40.4295
100/60AD	40.2895	156/118AD	40.4395
102/60AD	40.2995	160/118AD	40.4495
103/60AD	40.3095	190/150AD	40.4595
105/60AD	40.3195	200/150AD	40.4695
107/60AD	40.3295	203/150AD	40.4795
110/70AD	40.3395	207/150AD	40.4895

SLIPSIL[®] adapter plugs can be used in cases where conduit sleeves are much larger than the service pipe OD, and no individual sealing plug is available. SLIPSIL[®] adapter plugs consist of two equal parts, so that they can be installed after the cable of pipe has been laid. The inside of the adapter plug is perfectly smooth, so that the SLIPSIL[®] single plug can be easily pushed in and obtain an effective seal between the two plugs. Especially developed for ducting flanged pipes.











SLIPSIL[®] SEALING PLUGS FOR EMC RATED PIPE PENETRATIONS

For the EMC protection of pipe penetrations entering shielded areas, an electrically conductive flexible rubber was developed for the SLIPSIL[®] pipe penetrations type EMC. Tests carried out in our laboratories have shown that the electrical resistance from braiding to mass is about 1-2 Ohm.

Attenuation tests at DELTA Electronics Testing/Denmark have proven the outstanding damping properties of the SLIPSIL[®] EMC sealing system.

Attenuation measurements in the range of 0-1000 MHz:

40 mm CONDUCTON[®] flexible rubber offers an attenuation of 35 - 85 dB.

Instead of the CONDUCTON[®] flexible rubber, CONDUCTON[®] putty can be used. The putty has to be cured before inserting the second plug.

The attenuation ratings obtained with the CONDUCTON[®] putty are lower: 10 - 30 dB.

Refer to the brochure of the RISE[®] cable transits for specifications of the putty.

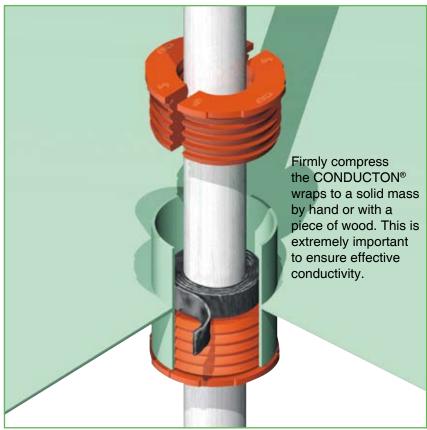
CONDUCTON[®] flexible rubber is used to fill the cavity around the ducted pipes in the conduit sleeve. This rubber can be molded by hand and offers the highest attenuation.

CONDUCTON[®] flexible rubber is absolutely HALOGEN FREE and has a toxicity index of 0,00 (tested according to Naval Engineering Standard NES 713: Issue 3).

Furthermore, $CONDUCTON^{\circ}$ has a low smoke index (NES 711: Issue 2: 1981), an oxygen index of 38,2% (ISO 4589-2: 1996), and a temperature index of 294 °C (ISO 4589-3: 1996).

CONDUCTON[®] flexible rubber fullfils the criteria for use on board of UK Navy vessels for EMP/EMI penetrations.

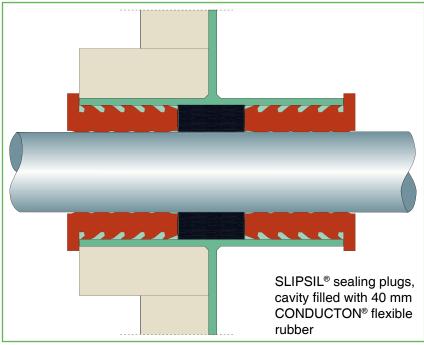




IMPORTANT INFORMATION:

The level of attenuation obtained with a CONDUCTON® penetration is partly dependent on:

- a) the distance between the ducted pipe and the wall of the conduit sleeve
- b) the contact surface with the conductive materials
- c) the greater or lesser homogeneous filling of the conductive mass
- d) the condition of the contact surface in the conduit sleeve





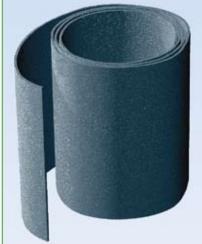


CRUSHER® type C-FIT



Note: maximum continuous service temperature of the CRUSHERS® not to exceed 70 °C. Consult® our technical support department in case of higher operating temperatures.

CRUSHER® type WRAP



Note: maximum continuous service temperature of the CRUSHERS® not to exceed 70 °C. Consult® our technical support department in case of higher operating temperatures.



compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead. After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

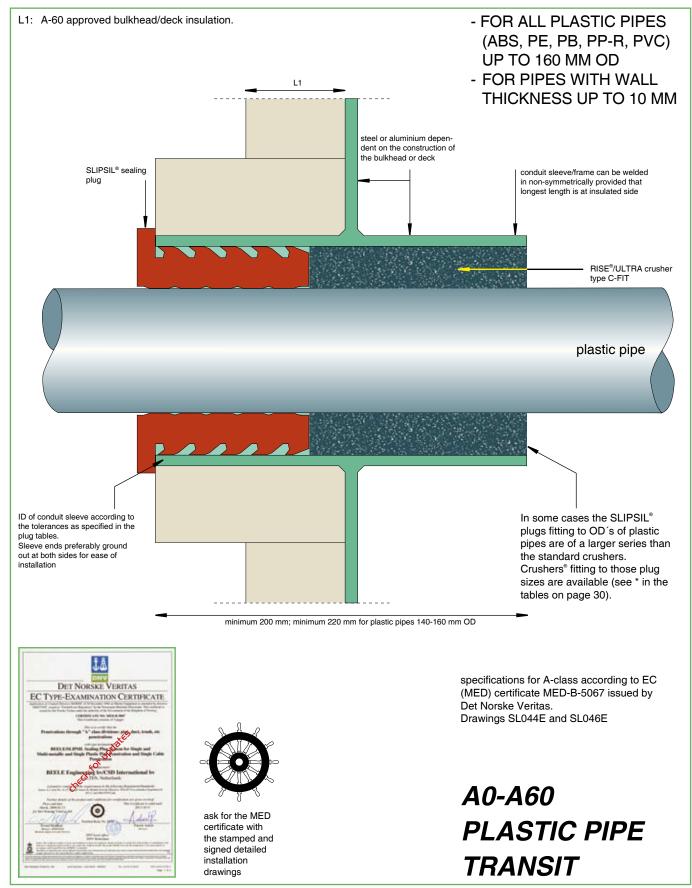
NOFIRNO® is a paste-like

Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

plastic pipe OD	crusher® type	conduit opening		crusher® length	article number
16 18 20 25 32 40 50 63 75 90 110 125 140 160	37/16 37/18 37/20 54/25* 54/32 82/40* 82/50 107/63* 107/75 131/90 159/110 159/125 207/140 207/160	37.2 37.2 37.2 54.5 54.5 82.5 107.1 131.7 159.3 159.3 207.3 207.3	all dimensions in mm	140 140 140 140 140 140 140 140 140 140	80.2800 80.2801 80.2802 80.2815 80.2804 80.2816 80.2806 80.2817 80.2808 80.2809 80.2810 80.2811 80.2812 80.2813
16 18 20 25 32 40 50 63 75 90 110 125 140 160	37/16 37/18 37/20 54/25* 54/32 82/40* 82/50 107/63* 107/75 131/90 159/110 159/125 207/140 207/160	37.2 37.2 37.2 54.5 54.5 82.5 82.5 107.1 131.7 159.3 159.3 207.3 207.3	all dimensions in mm	170 170 170 170 170 170 170 170 170 170	80.2840 80.2841 80.2855 80.2855 80.2844 80.2856 80.2846 80.2857 80.2848 80.2857 80.2849 80.2850 80.2851 80.2852 80.2853
16 18 20 25 32 40 50 63 75 90 110 125 140 160	35/16 35/18 41/20 53/25* 53/32 80/40* 80/50 105/63* 105/75 130/90 155/110 155/125 202/140 202/160	35.9 35.9 41.1 53.9 53.9 80.7 80.7 105.3 130.8 155.2 155.2 202.7 202.7	all dimensions in mm	140 140 140 140 140 140 140 140 140 140	80.2900 80.2901 80.2902 80.2915 80.2904 80.2916 80.2906 80.2917 80.2908 80.2909 80.2910 80.2911 80.2912 80.2913
16 18 20 25 32 40 50 63 75 90 110 125 140 160	35/16 35/18 41/20 53/25* 53/32 80/40* 80/50 105/63* 105/75 130/90 155/110 155/125 202/140 202/160	35.9 35.9 41.1 53.9 53.9 80.7 80.7 105.3 130.8 155.2 155.2 202.7 202.7	all dimensions in mm	170 170 170 170 170 170 170 170 170 170	80.2940 80.2941 80.2955 80.2955 80.2944 80.2956 80.2946 80.2957 80.2948 80.2957 80.2949 80.2950 80.2951 80.2952 80.2953
* special crush		ie available p	lug	sizes	
wrap 1000x140 wrap 1000x160 wrap 1000x170 wrap 1000x190)x2.5 mm)x2.5 mm	all dimen	sions	in mm	80.2512 80.2513 80.2514 80.2515











 Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve.
 For ease of installation, it is advisable to grind out the front side of the sleeve.

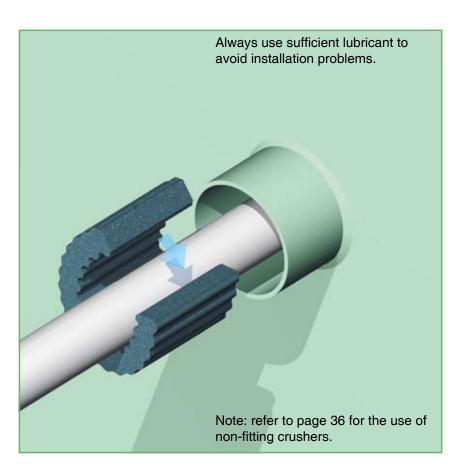
Note: sleeve ends to be ground out for ease of installation. Note: the pipe has to be ducted straight and centrically!

Note: maximum continuous service temperature of the CRUSHERS® not to exceed 70 °C. Consult our technical support department in case of higher operating temperatures.

slipsil

2) The exact fitting RISE[®]/ ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe.

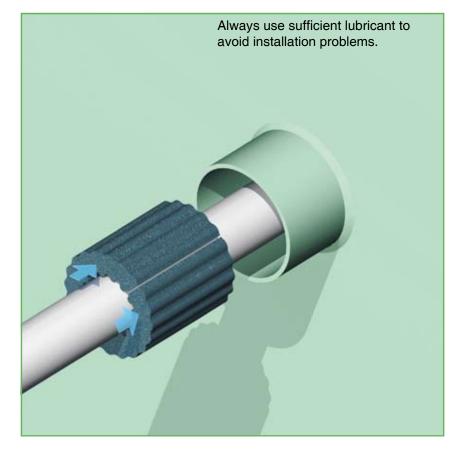
slipsil







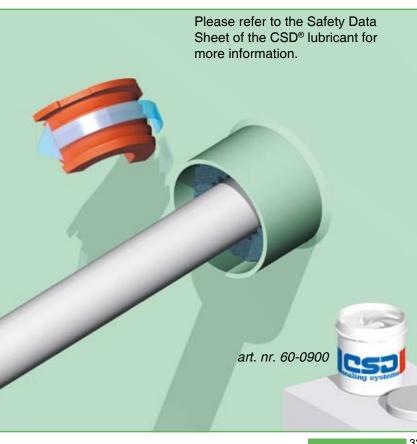
3) In case of a tight fitting crusher, the outside of the crusher and the inner wall of the conduit should be treated with CSD[®] lubricant for ease of installation. Push the crusher into the conduit sleeve. Check for a tight fit.



slipsil

4) The RISE[®]/ULTRA C-FIT crusher should be pushed in so that the first serrated profiles of the SLIPSIL[®] sealing plug can be inserted in the conduit sleeves. The segments of the SLIPSIL[®] sealing plug are treated with CSD[®] lubricant all around.







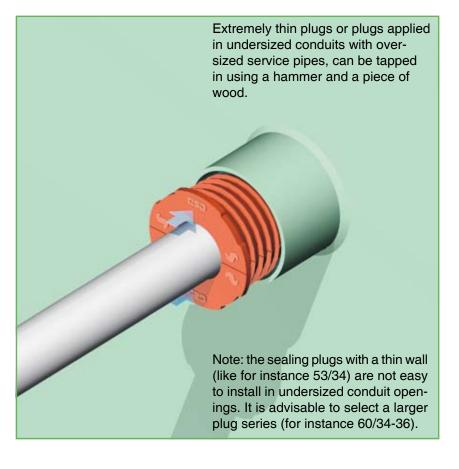


5) Both segments of the SLIPSIL[®] sealing plug are placed around the ducted pipe and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

slipsil

6) Then both segments of the SLIPSIL[®] sealing plug are pushed by hand evenly, serration by serration, further into the conduit sleeve.



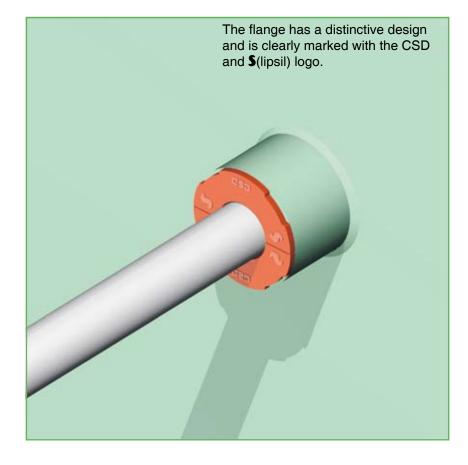








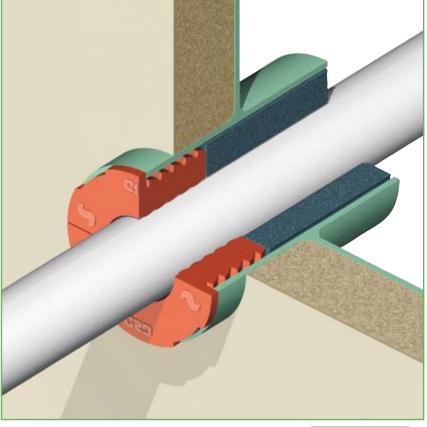
7) The flanged edge of the sealing plug must be flush against the front side of the conduit sleeve. Note: tightness and installation are optimum at nominal sizes (for instance for 60/34-36 optimum is 60 mm ID of the sleeve and 34 mm OD of the ducted pipe).



slipsil

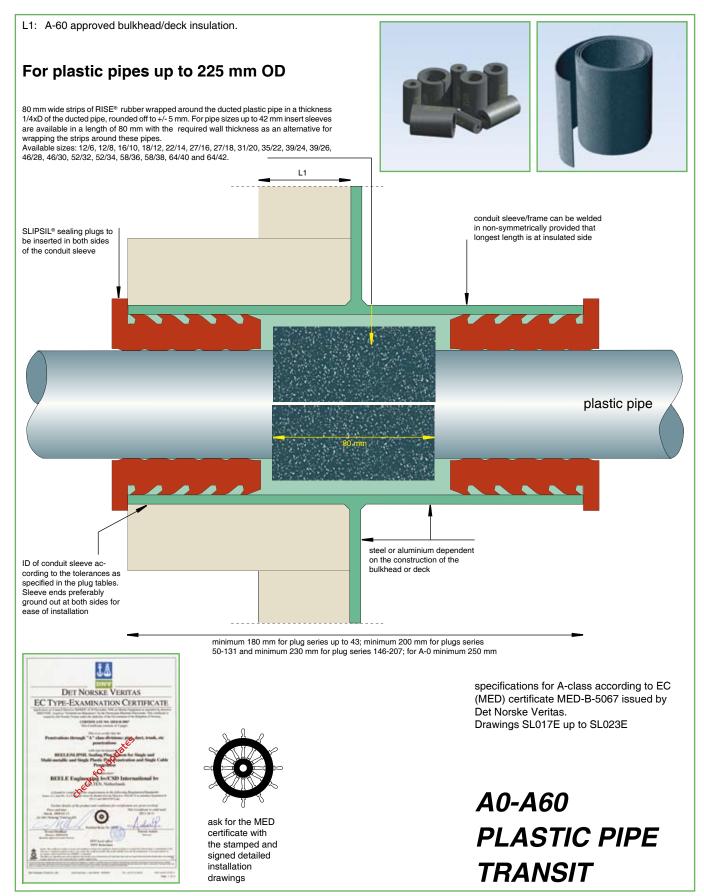
8) For A-class penetrations (which are insulated), the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.

slipsil













BEELE - RESEARCH & DEVELOPMENT PRODUCTS FOR SPECIAL APPLICATIONS

NOFIRNO[®]

NEW TECHNOLOGY

- Approved for harshest fire ratings for pipe penetrations (A, H and Jet Fire class).
- Allows substantial movement of the ducted pipe within the conduit.
- High pressure ratings designed for gas and/or watertight penetrations.
- Prevents corrosion inside the penetration.
- Longest service life and best Total Cost of Ownership on the market.
- NOFIRNO[®] rubber sleeves and sealant will remain stable and not be consumed by fire.
- Breakthrough MULTI-ALL-MIX SYSTEM[®]
- Approved for any combination of cable and/or metallic, GRP or plastic pipes!

NOFIRNO[®]

NEW TECHNOLOGY

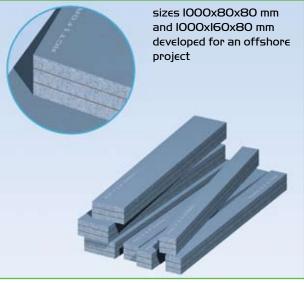
- Gaskets and rubber sheets for applications in which the transits, coamings or conduit sleeves are bolted to the partition.
- Successfully tested for A-class RISE[®], RIACNOF[®] and NOFIRNO[®] sealing systems for multi-cable and pipe transits bolted to the partitions.
- NOFIRNO[®] rubber will remain stable and not be consumed by fire.
- NOFIRNO[®] rubber has excellent resistance against UV, Ozone and weathering.
- Wide temperature range: -50 °C up to +180 °C.
- Proven harshest fire exposure
- Special sizes of gaskets upon request.
- Products made of NOFIRNO® rubber upon request.

ACTIFOAM[®]/ULTRA NEWEST TECHNOLOGY

- Sealing of gaps and openings in constructions against the ingress of moisture and to avoid flame spread.
- ACTIFOAM[®] has high thermal insulation values due to the close cellular structure.
- RISE®/ULTRA adhesive properties under fire load.
- Breakthrough ACTIFOAM[®] sheets can be layered with RISE/ULTRA sheets.
- The sandwich construction acts as a "bridge bearing" enabling the carrying of very high loads.
- Highest fire ratings achievable due to the unique combination of the two rubber grades.
- Successfully subjected to two hour hydrocarbon fire.









BEELE ENGINEERING: A COMPANY DEDICATED TO SAFETY FOR OVER 35 YEARS



BEELE Engineering bv - CSD International bv

CSD Sealing Systems - North America, LLC 21 Meadowbrook Lane - Unit 12, Gilford, NH 03249 USA Tel. 603-293-0100 Fax 603-293-0200 E-Mail info@csd.us.com

www.csd.us.com www.beele.com