



Pipe enlarging type fitting for light gauge stainless steel pipe

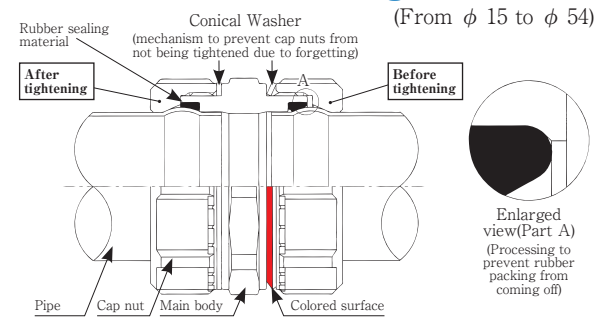


***No use of heat or flame***  
***No specialized technology required***  
***Not press type fitting***



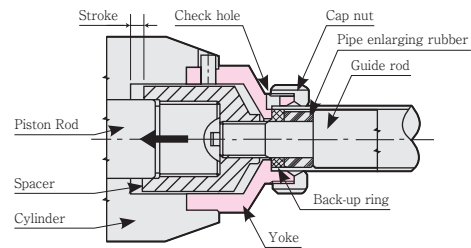
 **O.N. INDUSTRIES LTD.**

### ◆ Structure of Connecting section



**Structure:** A cap nut and flange are mounted to the expanded pipe end, connected to the fitting. Rubber packing is inserted into a triangle chamber surrounded by the fitting and pipe to seal out liquid.

### ◆ Pipe enlarging principle



**Pipe enlarging principle:** Expanding pipe enlarging rubber when compressed load is applied in the axis (arrow) direction with oil pressure. The pipe inserted into guide rod is enlarged by a force where the pipe enlarging rubber expands in the circumferential direction.

## Features

### (1) Easy

Easy to install. Not much time is needed to get the required skills.  
Easy to avoid forgetting to tighten the cap nut.  
Tightening can be checked visually through conical washer.

### (2) Quick

Faster processing time with using dedicated pipe expansion machine, anyone can handle the installation work easily.  
Prefabrication by cutting and expansion of pipes according to drawings can be done in a piping factory, so assembling a unit and final assembly on site is not so complicated.

### (3) Strong

Excellent durability and withstands even huge earthquakes.  
Unique structure, pipe enlargement system, proved seismic tests.  
The secret is the unique expanded pipe structure and expanding the end of pipe that has stronger resistance with cap nut.

### (4) Light

O.N. Fitting system uses thin wall thickness stainless steel pipe.  
Light, easy and amazingly fast.  
It is easy to carry, handle and operate even in narrow places, workability is high.

### (5) Eco-friendly

Hygienic stainless steel does not create red or blue water due to corrosion of steel pipes.  
Stainless steel is environmentally friendly and has a long service life.  
As open flames are not used, it is convenient for repairs.

## Cautions in installation

1. Always keep in mind that the pipe is thin.
2. Carefully perform cutting and chamfering.
3. Mount pipe expansion machine parts correctly.
4. When enlarging the pipe, insert pipe correctly.
5. Keep the correct pipe enlarging amount.
6. Do not forget rubber sealing material.
7. Tighten the cap nut completely.
8. Do not apply an excessive piping stress.
9. Be sure to take measures against corrosion and freezing.
10. Fix the support securely.

**\*Please connect the next process with the extension of piping after completely tightening cap nut.**

## Operation procedures with NE40C pipe expander (From $\phi 15$ to $\phi 54$ )



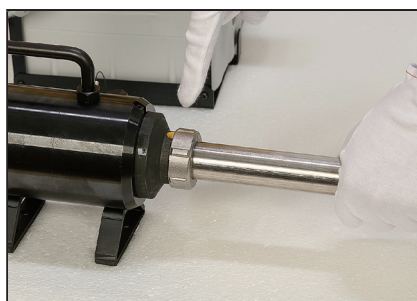
**1.**Referring to the pipe cutting dimension table, cut the pipe at a right angle to the axis core with a metal saw or band saw.



**2.**Carefully, remove burrs from both the inner and outer chamfered surfaces carefully using reamer, sand paper and grinder.



**3.**Tighten the cap nut to the yoke.



**4.**Insert the pipe into the guide rod completely.



**5.**For the pipe expansion work, keep pressing "UP" button until the motor stops. Then, pressing "DOWN" button around two seconds to release the pressure.



**6.**Insert the enlarged pipe into the fitting and tighten the cap nut.



**7.**In case rubber sealing material is dropped, be sure to mount it to the fitting main body.



**8.**Set the conical washer to a section where the cap nut side surface comes in contact with the fitting and tighten the nut until the colored surface is not visible.

**⚠ Safety Precautions**  
Check instruction and installation manual before the work.



## Products

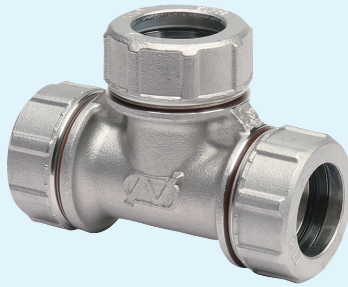
(Unit : mm)

### 90°Elbow



| size       | Qty per carton |
|------------|----------------|
| φ 15 / 1.0 | <b>48</b>      |
| φ 18 / 1.0 | <b>42</b>      |
| φ 22 / 1.2 | <b>30</b>      |
| φ 28 / 1.2 | <b>20</b>      |
| φ 35 / 1.5 | <b>24</b>      |
| φ 42 / 1.5 | <b>16</b>      |
| φ 54 / 1.5 | <b>8</b>       |

### Equal Tees



| size       | Qty per carton |
|------------|----------------|
| φ 15 / 1.0 | <b>36</b>      |
| φ 18 / 1.0 | <b>36</b>      |
| φ 22 / 1.2 | <b>24</b>      |
| φ 28 / 1.2 | <b>20</b>      |
| φ 35 / 1.5 | <b>12</b>      |
| φ 42 / 1.5 | <b>10</b>      |
| φ 54 / 1.5 | <b>6</b>       |

### Socket



| size       | Qty per carton |
|------------|----------------|
| φ 15 / 1.0 | <b>64</b>      |
| φ 18 / 1.0 | <b>56</b>      |
| φ 22 / 1.2 | <b>48</b>      |
| φ 28 / 1.2 | <b>30</b>      |
| φ 35 / 1.5 | <b>32</b>      |
| φ 42 / 1.5 | <b>28</b>      |
| φ 54 / 1.5 | <b>12</b>      |

### Male Adapter



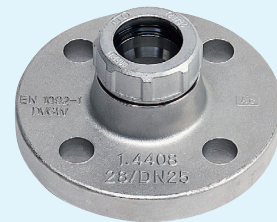
| size                                      | Qty per carton |
|---|----------------|
| φ 15/1.0 × R <sup>1</sup> / <sub>2</sub>  | <b>64</b>      |
| φ 18/1.0 × R <sup>1</sup> / <sub>2</sub>  | <b>56</b>      |
| φ 22/1.2 × R <sup>3</sup> / <sub>4</sub>  | <b>48</b>      |
| φ 28/1.2 × R1                             | <b>30</b>      |
| φ 35/1.5 × R1 <sup>1</sup> / <sub>4</sub> | <b>32</b>      |
| φ 42/1.5 × R1 <sup>1</sup> / <sub>2</sub> | <b>28</b>      |
| φ 54/1.5 × R2                             | <b>12</b>      |

### Female Adapter



| size                                       | Qty per carton |
|--|----------------|
| φ 15/1.0 × Rp <sup>1</sup> / <sub>2</sub>  | <b>64</b>      |
| φ 18/1.0 × Rp <sup>1</sup> / <sub>2</sub>  | <b>56</b>      |
| φ 22/1.2 × Rp <sup>3</sup> / <sub>4</sub>  | <b>48</b>      |
| φ 28/1.2 × Rp1                             | <b>30</b>      |
| φ 35/1.5 × Rp1 <sup>1</sup> / <sub>4</sub> | <b>32</b>      |
| φ 42/1.5 × Rp1 <sup>1</sup> / <sub>2</sub> | <b>28</b>      |
| φ 54/1.5 × Rp2                             | <b>12</b>      |

### Flange Adapter



| size            | Qty per carton |
|-----------------|----------------|
| φ 15/1.0 × DN15 | <b>4</b>       |
| φ 18/1.0 × DN15 | <b>4</b>       |
| φ 22/1.2 × DN20 | <b>4</b>       |
| φ 28/1.2 × DN25 | <b>4</b>       |
| φ 35/1.5 × DN32 | <b>4</b>       |
| φ 42/1.5 × DN40 | <b>4</b>       |
| φ 54/1.5 × DN50 | <b>2</b>       |

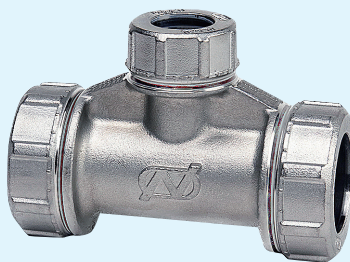
(Unit : mm)

### Reduced Elbow



| size                                 | Qty per carton |
|--------------------------------------|----------------|
| $\phi$ 18/1.0 $\times$ $\phi$ 15/1.0 | <b>42</b>      |
| $\phi$ 22/1.2 $\times$ $\phi$ 18/1.0 | <b>30</b>      |
| $\phi$ 28/1.2 $\times$ $\phi$ 22/1.2 | <b>20</b>      |
| $\phi$ 35/1.5 $\times$ $\phi$ 28/1.2 | <b>24</b>      |
| $\phi$ 42/1.5 $\times$ $\phi$ 35/1.5 | <b>16</b>      |
| $\phi$ 54/1.5 $\times$ $\phi$ 42/1.5 | <b>8</b>       |

### Reduced Tees



| size                                 | Qty per carton |
|--------------------------------------|----------------|
| $\phi$ 18/1.0 $\times$ $\phi$ 15/1.0 | <b>36</b>      |
| $\phi$ 22/1.2 $\times$ $\phi$ 15/1.0 | <b>24</b>      |
| $\phi$ 22/1.2 $\times$ $\phi$ 18/1.0 | <b>24</b>      |
| $\phi$ 28/1.2 $\times$ $\phi$ 18/1.0 | <b>20</b>      |
| $\phi$ 28/1.2 $\times$ $\phi$ 22/1.2 | <b>20</b>      |
| $\phi$ 35/1.5 $\times$ $\phi$ 22/1.2 | <b>12</b>      |
| $\phi$ 35/1.5 $\times$ $\phi$ 28/1.2 | <b>12</b>      |
| $\phi$ 42/1.5 $\times$ $\phi$ 28/1.2 | <b>10</b>      |
| $\phi$ 42/1.5 $\times$ $\phi$ 35/1.5 | <b>10</b>      |
| $\phi$ 54/1.5 $\times$ $\phi$ 35/1.5 | <b>6</b>       |
| $\phi$ 54/1.5 $\times$ $\phi$ 42/1.5 | <b>6</b>       |

### Reducer



| size                                 | Qty per carton |
|--------------------------------------|----------------|
| $\phi$ 18/1.0 $\times$ $\phi$ 15/1.0 | <b>56</b>      |
| $\phi$ 22/1.2 $\times$ $\phi$ 15/1.0 | <b>48</b>      |
| $\phi$ 22/1.2 $\times$ $\phi$ 18/1.0 | <b>48</b>      |
| $\phi$ 28/1.2 $\times$ $\phi$ 18/1.0 | <b>30</b>      |
| $\phi$ 28/1.2 $\times$ $\phi$ 22/1.2 | <b>30</b>      |
| $\phi$ 35/1.5 $\times$ $\phi$ 22/1.2 | <b>32</b>      |
| $\phi$ 35/1.5 $\times$ $\phi$ 28/1.2 | <b>32</b>      |
| $\phi$ 42/1.5 $\times$ $\phi$ 28/1.2 | <b>28</b>      |
| $\phi$ 42/1.5 $\times$ $\phi$ 35/1.5 | <b>28</b>      |
| $\phi$ 54/1.5 $\times$ $\phi$ 35/1.5 | <b>12</b>      |
| $\phi$ 54/1.5 $\times$ $\phi$ 42/1.5 | <b>12</b>      |

## Pipe expander

### ◆NE30C-Type



|                        |                       |
|------------------------|-----------------------|
| Electrical requirement | Lithium ion battery   |
| Pipe expansion range   | 15mm to 28mm (4sizes) |
| Weight                 | 4.3kg                 |

### ◆NE40C-Type



|                        |                       |
|------------------------|-----------------------|
| Electrical requirement | AC230V                |
| Pipe expansion range   | 15mm to 54mm (7sizes) |
| Weight                 | 21kg                  |



**Warning: Machine designed exclusively for O.N. Fitting system**

1. Using these machines for the expansion of mechanical fittings other than O.N. Fitting will cause trouble.
2. Expanding tubes with pipe enlarging machines other than the dedicated ones will affect the performance of O.N. Fitting.

## Specification

### (1) Scope of usage



O.N. Fitting is suitable for portable water, cooling water, cold and hot water, and compressed air etc.

### (2) Temperature, pressure

Temperature : from 0°C (not frozen) to 100°C

Pressure : MAX 20bar

### (3) Rubber sealing material

|                             |   |
|-----------------------------|---|
|                             | Standard product  |
| Front<br>(Pipe side)        |       |
| Back<br>(Fitting body side) |      |
| Material                    | <b>EPDM</b>   |
| Nominal size                | From $\phi$ 15 to $\phi$ 54 (7 sizes)   |
| Applications                | Suitable for portable water, cooling water, cold and hot water, compressed air and etc. |
| Temperature                 | From 0°C (not frozen) to 100°C  |
| Appearance                  | Black   |

### (4) Scope of applicable pipes

Light gauge stainless steel pipes in accordance with EN10312 Table2 and DVGW W541



### (5) Degreased and cleansed products

Degreased and cleansed O.N. Fitting is manufactured separately.

## Safety Precautions

When you use our products under conditions other than those specified above, please contact us in advance. Be sure to read the Instruction manual before installation.





## DVGW type examination certificate

### DVGW-Baumusterprüfzertifikat

**DW-8511CU0344**  
Registration Number  
Registriernummer

|   |  |
|---|--|
| <b>Field of Application</b><br><i>Anwendungsbereich</i>               | products of water supply<br><i>Produkte der Wasserversorgung</i>   |
| <b>Owner of Certificate</b><br><i>Zertifikatinhaber</i>               | O.N. Industries Ltd.<br>Tsuyama, Okayama, JP-3235-2 Kamitanomura   |
| <b>Distributor</b><br><i>Vertreiber</i>                               | O.N. Industries Ltd.<br>Tsuyama, Okayama, JP-3235-2 Kamitanomura   |
| <b>Product Category</b><br><i>Produktart</i>                          | installation systems and system joints: pipe joint for pipes in drinking water installation systems (8511)                                       |
| <b>Product Description</b><br><i>Produktbezeichnung</i>               | mechanical connectors made from stainless steel for stainless steel pipes according to DVGW GW 541 (type M-MM)                                   |
| <b>Model</b><br><i>Modell</i>   | O.N. Fitting   |
| <b>Test Reports</b><br><i>Prüfberichte</i>                            | type testing: K 19 0405 from 01.11.2019 (MPD)  |
| <b>Test Basis</b><br><i>Prüfgrundlagen</i>                            | DVGW W 534-(P) (01.07.2015)<br>DVGW CERT ZP 8500 (09.03.2017)<br>UBA METALLE (21.11.2018)<br>UBA ELASTOM (16.03.2016)<br>DVGW W 270 (01.11.2007) |
| <b>Date of Expiry / File No.</b><br><i>Ablaufdatum / Aktenzeichen</i> | 01.11.2024 / 18-0464-WNE   |

70028-04-A-DE

12.11.2019 GI A-1/2

Date, Issued by, Sheet, Head of Certification Body  
Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle

DVGW CERT GmbH is an accredited body by DAkkS according to DIN EN ISO/IEC 17065:2013 for certification of products for energy and water supply industry.

DVGW CERT GmbH ist von der DAkkS nach DIN EN ISO/IEC 17065:2013 akkreditierte Stelle für die Zertifizierung von Produkten der Energie- und Wasserversorgung.



DVGW CERT GmbH  
Zertifizierungsstelle

Josef-Wirmer-Str. 1-3  
53123 Bonn

Tel. +49 228 91 88 - 888  
Fax +49 228 91 88 - 993

www.dvgw-cert.com  
info@dvgw-cert.com

## We are dedicated to develop the seismic-resistant products

After Great Hanshin Awaji Earthquake, Great East Japan Earthquake and Kumamoto Earthquake, we visited sites where our products had been applied, such as hotels, universities, banks and waste disposal plants, etc. and confirmed that our products were safe.



High-end piping

**O.N. Fitting**

\*It has been verified that our products can stand earthquakes up to about MSKⅫ by applying acceleration of 2000Gal to pipes.

## O.N. INDUSTRIES LTD.

■Overseas Sales Division  
(Contact)

Nakamura No.2 Building 3F NO.307, 3-4-18 Kikawahigashi,  
Yodogawa-ku, Osaka City, 532-0012 Japan  
Tel: +81-6-6829-6002 Fax: +81-6-6829-6866

■New Head Office and Factory 3235-2, Kamitanomura, Tsuyama City, Okayama, 708-0011 Japan

Hokkaido Business Office / Tohoku Business Office / Tokyo Business Office  
Osaka Business Office / Chugoku and Shikoku Business Office / Kyushu Business Office

Website(English) <https://www.onk-net.co.jp/en/index.html>

Website(German) <https://www.onk-net.co.jp/de/index.html>

E-mail [onk@onk-net.co.jp](mailto:onk@onk-net.co.jp)



### Safety Precautions

Please read through "Instruction manual" before use to secure appropriate use of products listed in this catalogue.

### Installation explanation sessions for O.N. Fitting are available.

\*The installation will be provided in accordance with instruction manual.

\*If you handle our products for the first time, be sure to take an installation explanation session.

\*Please contact to sales representative for the sessions.

\*A technical training certificate or certificate of completion will be issued if needed.

\*Please apply for the installation explanation session as early as possible.