

**高能率深穴加工用超硬ソリッドドリル**  
 High Efficiency Solid Carbide Drills for Deep Hole Drilling

**スーパーマルチドリル XHGS 型**

SUPER MULTIDRILL XHGS series 第2版

**P M K N S H**

 深穴加工に更なる高能率化をもたらす新ロングドリル。  
 豊富なラインアップで新登場。

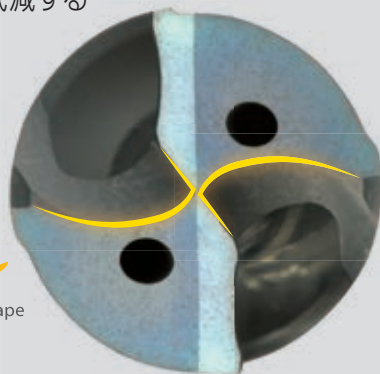
 The new long drill achieves higher efficiency in deep hole drilling.  
 Abundant lineup is newly added.

 Super Multi Drill  
**XHGS**  
 series  
 Ø2.5mm - Ø16.0mm  
**12D 15D 20D 25D 30D**

 刃先径×20倍の深穴を  $v_f=1,000\text{mm/min}$  を超える高能率で加工

 Drill to depths 20x drill diameter at high efficiency of  $v_f=1,000\text{mm/min}$ .

 高能率加工時の切削抵抗を低減する  
 特殊シンニング形状

 The application of a special thinning shape  
 reduces cutting resistance during  
 high efficiency drilling.

 深穴加工時の安定した切りくず処理を実現する  
 新溝形状 (Jフルート) を採用

 ドリル専用コーティング「DEX コート」の採用で、  
 多様な被削材に対して長寿命を実現

 MQL (セミドライ) および2液ミスト (油・水同時吐出)  
 への対応可

 New groove shape "J flute" with improved chip control stability when drilling  
 deep holes.

 The "DEX coat" provides long tool life with a wide variety of work materials.  
 Compatible with the MQL (Minimum Quantity Lubrication) system and dual-  
 fluid mist (simultaneous spray of oil and water).



## ■ シリーズ構成 Series

| 用途<br>Applications           | 型式<br>Series  | 刃径範囲(mm)<br>Diameter Range | 穴深さ(L/D)<br>Hole Depth |
|------------------------------|---------------|----------------------------|------------------------|
| 深穴用<br>Deep hole drilling    | MDW□□□□XHGS12 | φ2.5 ~ 16.0                | ~12                    |
|                              | MDW□□□□XHGS15 | φ2.5 ~ 14.0                | ~15                    |
|                              | MDW□□□□XHGS20 | φ2.5 ~ 12.0                | ~20                    |
|                              | MDW□□□□XHGS25 | φ2.5 ~ 10.0                | ~25                    |
|                              | MDW□□□□XHGS30 | φ2.5 ~ 9.0                 | ~30                    |
| ガイド穴用<br>Guide hole drilling | MDW□□□□PHT    | φ2.5 ~ 16.0                | ~ 2                    |

## ■ 概要 General Features

「スーパーマルチドリル XHGS型」は、深穴加工の更なる高能率化のため、高いドリル強度と安定した切りくず排出を実現した次世代の深穴加工用ドリルです。

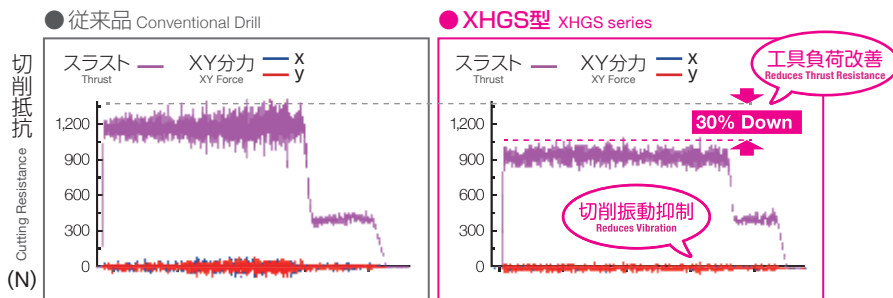
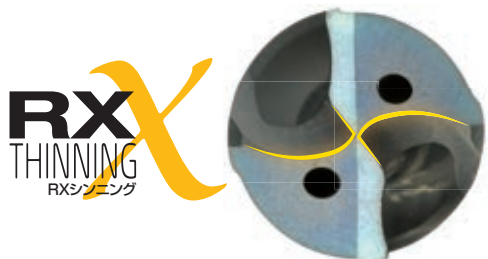
Super MultiDrill XHGS series is a next-generation drill for deep hole drilling, features stable chip control and improved strength to further enhance efficiency of deep hole drilling.

## ■ 特長・用途 Characteristics and Applications

### 低抵抗 Low Cutting Resistance

特殊シンニング形状「RXシンニング」の採用で高能率加工時の切削抵抗を低減

The application of a special thinning shape "RX thinning" reduces cutting resistance during high efficiency drilling.

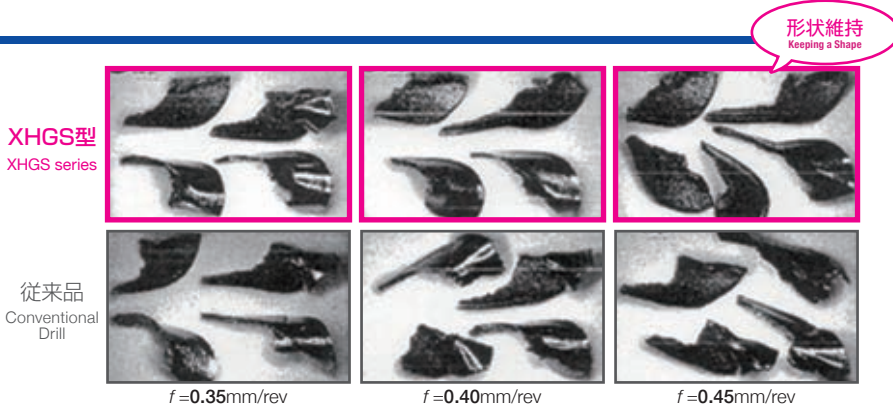


被削材: S43C 使用工具: 従来品(MDW0497XHT20), MDW0500XHGS20(φ5.0mm 20D)  
Work Materials: S43C Tools: Conventional Drill, MDW0500XHGS20(φ5.0mm 20D)  
切削条件:  $v_c=80\text{m/min}$ ,  $f=0.35\text{mm/rev}$  (→貫通時  $f=0.08\text{mm/rev}$ ),  $H=90\text{mm}$ , MQL給油  
Cutting Conditions: At the time of the penetration

### 切りくず処理 Chip Control

深穴加工時の安定した切りくず処理性を向上させた新溝形状「Jフルート」を採用

New groove shape "J flute" with improved chip control stability when drilling deep holes.

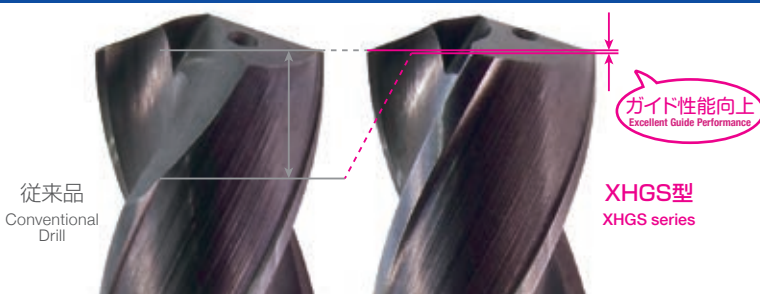


被削材: S43C 使用工具: 従来品(MDW0497XHT20), MDW0500XHGS20(φ5.0mm 20D)  
Work Materials: S43C Tools: Conventional Drill, MDW0500XHGS20(φ5.0mm 20D)  
切削条件:  $v_c=80\text{m/min}$ ,  $H=90\text{mm}$ , MQL給油  
Cutting Conditions: Coolant

### 高精度 High Precision

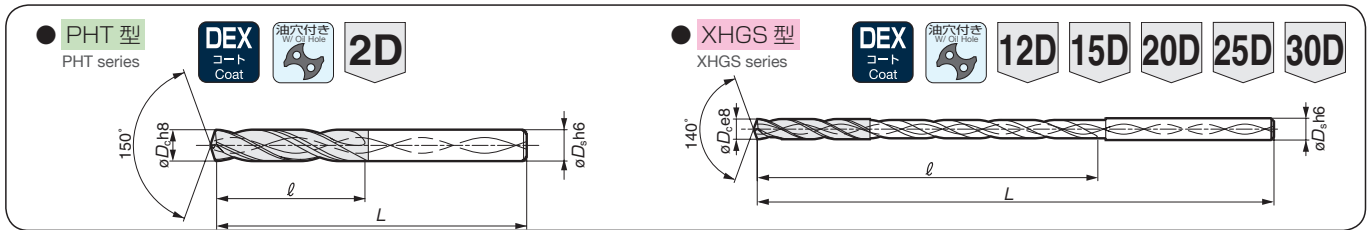
従来品と比べ、切れ刃(主マーゲン)から副マーゲンまでの距離が短く、切削開始時からびびりのない安定した加工が可能

The shorter distance from a cutting edge (the main margin) to a vice margin (in comparison with) than the conventional products enables stable drilling without the booby at the time of a drilling start.



## 内部給油式 (XHGS型/PHT型) Internal coolant supply (XHGS/PHT series)

|   |                           |                        |                           |                  |                             |                 |                           |                         |                     |  |
|---|---------------------------|------------------------|---------------------------|------------------|-----------------------------|-----------------|---------------------------|-------------------------|---------------------|--|
| 炭素鋼-合金鋼<br>Carbon steel and alloy steel | 調質鋼<br>Heat treated steel | 高硬度鋼<br>Hardened steel | ステンレス鋼<br>Stainless steel | Ti合金<br>Ti alloy | 耐熱鋼<br>Heat resistant steel | 鋳鉄<br>Cast iron | タタリ鋼<br>Ductile cast iron | アルミ合金<br>Aluminum alloy | 銅合金<br>Copper alloy | 複合材<br>CFRP<br>Carbon fiber reinforced plastic |
| ◎                                       | ◎                         | ○                      | ○                         | ○                | ○                           | ○               | ○                         | ○                       | ○                   | ○  |



### ●刃径 Drill diameter φ2.5 ~ φ7.0mm

| 刃径<br>Drill diameter<br>φD <sub>c</sub><br>(mm) | シャンク径<br>Shank diameter<br>φD <sub>s</sub><br>(mm) | 専用ガイド穴用PHT型<br>Dedicated Guide Hole PHT series |                 | 高能率深穴用ドリルXHGS型<br>High Efficiency Deep Hole Drill XHGS series |                 |                            |                          |                            |                          |                            |                          |                            |                          |                            |                          |     |     |   |     |     |   |     |     |
|---|--|--|-----------------|---|-----------------|----------------------------|--------------------------|----------------------------|--------------------------|----------------------------|--------------------------|----------------------------|--------------------------|----------------------------|--------------------------|-----|-----|---|-----|-----|---|-----|-----|
|   |  | 型番<br>Cat. No.                                 | 在庫<br>Stock     | 寸法(mm)<br>Dimensions(mm)<br>L ℓ                               | 型番<br>Cat. No.  | 穴深さ12D用<br>Hole Depth: 12D |                          | 穴深さ15D用<br>Hole Depth: 15D |                          | 穴深さ20D用<br>Hole Depth: 20D |                          | 穴深さ25D用<br>Hole Depth: 25D |                          | 穴深さ30D用<br>Hole Depth: 30D |                          |     |     |   |     |     |   |     |     |
|   |  |  |                 |   |                 | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) |     |     |   |     |     |   |     |     |
| 2.5   | 3.0  | MDW 0250PHT ●                                  | ●               | 15  | MDW 0250XHGS □□ | ●                          | 91                       | 43                         | ●                        | 98                         | 50                       | ●                          | 111                      | 63                         | ●                        | 123 | 75  | ● | 136 | 88  |   |     |     |
| 2.6   |  | MDW 0260PHT ●                                  |                 |   | MDW 0260XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 2.7   |  | MDW 0270PHT ●                                  |                 |   | MDW 0270XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 2.8   |  | MDW 0280PHT ●                                  |                 |   | MDW 0280XHGS □□ | ●                          | 68                       | 17.5                       | ●                        | 99                         | 51                       | ●                          | 108                      | 60                         | ●                        | 123 | 75  | ● | 138 | 90  | ● | 153 | 105 |
| 2.9   |  | MDW 0290PHT ●                                  |                 |   | MDW 0290XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.0   |  | MDW 0300PHT ●                                  |                 |   | MDW 0300XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.1   | 4.0  | MDW 0310PHT ●                                  | ●               | 20  | MDW 0310XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     |     |   |     |     |
| 3.2   |  | MDW 0320PHT ●                                  |                 |   | MDW 0320XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.3   |  | MDW 0330PHT ●                                  |                 |   | MDW 0330XHGS □□ | ●                          | 72                       | 22.5                       | ●                        | 108                        | 60                       | ●                          | 118                      | 70                         | ●                        | 136 | 88  | ● | 153 | 105 | ● | 171 | 123 |
| 3.4   |  | MDW 0340PHT ●                                  |                 |   | MDW 0340XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.5   |  | MDW 0350PHT ●                                  |                 |   | MDW 0350XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.6   |  | MDW 0360PHT ●                                  |                 |   | MDW 0360XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.7   |  | MDW 0370PHT ●                                  |                 |   | MDW 0370XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.8   |  | MDW 0380PHT ●                                  |                 |   | MDW 0380XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 3.9   | MDW 0390PHT ●                                      | MDW 0390XHGS □□                                | ●               |   | ●               |                            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |     | ●   |   |     |     |   |     |     |
| 4.0   | MDW 0400PHT ●                                      | MDW 0400XHGS □□                                | ●               |   | ●               |                            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |     | ●   |   |     |     |   |     |     |
| 4.1   | 5.0  | MDW 0410PHT ●                                  | ●               | 25  | MDW 0410XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     |     |   |     |     |
| 4.2   |  | MDW 0420PHT ●                                  |                 |   | MDW 0420XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 4.3   |  | MDW 0430PHT ●                                  |                 |   | MDW 0430XHGS □□ | ●                          | 80                       | 27.5                       | ●                        | 127                        | 77                       | ●                          | 140                      | 90                         | ●                        | 163 | 113 | ● | 185 | 135 | ● | 208 | 158 |
| 4.4   |  | MDW 0440PHT ●                                  |                 |   | MDW 0440XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 4.5   |  | MDW 0450PHT ●                                  |                 |   | MDW 0450XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 4.6   |  | MDW 0460PHT ●                                  |                 |   | MDW 0460XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 4.7   |  | MDW 0470PHT ●                                  |                 |   | MDW 0470XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 4.8   |  | MDW 0480PHT ●                                  |                 |   | MDW 0480XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 4.9   |  | MDW 0490PHT ●                                  |                 |   | MDW 0490XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.0   |  | MDW 0500PHT ●                                  |                 |   | MDW 0500XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.1   | 6.0  | MDW 0510PHT ●                                  | ●               | 27.5  | MDW 0510XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     |     |   |     |     |
| 5.2   |  | MDW 0520PHT ●                                  |                 |   | MDW 0520XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.3   |  | MDW 0530PHT ●                                  |                 |   | MDW 0530XHGS □□ | ●                          | 82                       | 30                         | ●                        | 146                        | 94                       | ●                          | 162                      | 110                        | ●                        | 192 | 140 | ● | 217 | 165 | ● | 245 | 193 |
| 5.4   |  | MDW 0540PHT ●                                  |                 |   | MDW 0540XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.5   |  | MDW 0550PHT ●                                  |                 |   | MDW 0550XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.6   |  | MDW 0560PHT ●                                  |                 |   | MDW 0560XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.7   |  | MDW 0570PHT ●                                  |                 |   | MDW 0570XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.8   |  | MDW 0580PHT ●                                  |                 |   | MDW 0580XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 5.9   |  | MDW 0590PHT ●                                  |                 |   | MDW 0590XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.0   |  | MDW 0600PHT ●                                  |                 |   | MDW 0600XHGS □□ | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.1   |  | 7.0  |                 |   | MDW 0610PHT ●   | ●                          | 32.5                     | MDW 0610XHGS □□            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |     | ●   |   | ●   |     | ● |     |     |
| 6.2   |  |  |                 |   | MDW 0620PHT ●   |                            |                          | MDW 0620XHGS □□            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |     | ●   |   | ●   |     | ● |     | ●   |
| 6.3   | MDW 0630PHT ●                                      |  | MDW 0630XHGS □□ | ●   | 88              |                            |                          | 35                         | ●                        | 164                        | 111                      | ●                          | 183                      | 130                        | ●                        | 216 | 163 | ● | 248 | 195 | ● | 281 | 228 |
| 6.4   | MDW 0640PHT ●                                      |  | MDW 0640XHGS □□ | ●   |                 |                            |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.5   | MDW 0650PHT ●                                      |  | MDW 0650XHGS □□ | ●   |                 |                            |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.6   | MDW 0660PHT ●                                      |  | MDW 0660XHGS □□ | ●   |                 |                            |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.7   | MDW 0670PHT ●                                      |  | MDW 0670XHGS □□ | ●   |                 |                            |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.8   | MDW 0680PHT ●                                      |  | MDW 0680XHGS □□ | ●   |                 |                            |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 6.9   | MDW 0690PHT ●                                      |  | MDW 0690XHGS □□ | ●   |                 |                            |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●                          |                          | ●   |     | ● |     | ●   |   |     |     |
| 7.0   | MDW 0700PHT ●                                      | MDW 0700XHGS □□                                | ●               |   | ●               |                            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |                            | ●                        |     | ●   |   |     |     |   |     |     |

ご注文方法：型番表記の□□に12または15,20,25,30を入れてご注文願います。(例：MDW 0600XHGS12)  
How to order: Please indicate 12, 15, 20, 25 or 30 in the □□ when ordering. (Example: MDW 0600XHGS12)

材種 Grade XHGS : ACX70  
PHT : ACX20

●印：標準在庫品、無印：受注生産品  
● mark : Standard Stocked item Blank : Made to order item



## 内部給油式(XHGS型/PHT型) Internal coolant supply (XHGS/PHT series)

|   |                                     |  |                           |                  |                             |                 |                              |                         |                     |                             |
|---|-------------------------------------|--|---------------------------|------------------|-----------------------------|-----------------|------------------------------|-------------------------|---------------------|-----------------------------|
| 炭素鋼 合金鋼<br>Carbon steel Alloy steel<br>~0.28% | 調質鋼<br>Heat treated steel<br>0.29%~ | 高硬度鋼<br>High hardness steel<br>~45HRC 46HRC~ | ステンレス鋼<br>Stainless steel | Ti合金<br>Ti alloy | 耐熱鋼<br>Heat resistant steel | 鋳鉄<br>Cast iron | ダクタイル鋳鉄<br>Ductile cast iron | アルミ合金<br>Aluminum alloy | 銅合金<br>Copper alloy | 複合材<br>CFRP<br>Carbon fiber |
| ○   | ◎                                   | ◎  | ○                         | ○                | ○                           | ○               | ○                            | ○                       | ○                   | ○                           |

● PHT型  
PHT series



● XHGS型  
XHGS series



### ● 刃径 Drill diameter $\phi 7.1 \sim \phi 16.0$ mm

| 刃径<br>Drill diameter<br>$\phi D_c$<br>(mm) | シャンク径<br>Shank diameter<br>$\phi D_s$<br>(mm) | 専用ガイド穴用PHT型<br>Dedicated Guide Hole PHT series |             |                          | 高効率深穴用ドリルXHGS型<br>High Efficiency Deep Hole Drill XHGS series |                            |                          |             |                            |             |                          |                            |                          |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
|--|---|--|-------------|--------------------------|---|----------------------------|--------------------------|-------------|----------------------------|-------------|--------------------------|----------------------------|--------------------------|-------------|----------------------------|-------------|--------------------------|----------------------------|-----|-----|-----|-----|---|----|---|---|---|--|--|--|--|
|  |   | 型番<br>Cat. No.                                 | 在庫<br>Stock | 寸法(mm)<br>Dimensions(mm) |   | 穴深さ12D用<br>Hole Depth: 12D |                          |             | 穴深さ15D用<br>Hole Depth: 15D |             |                          | 穴深さ20D用<br>Hole Depth: 20D |                          |             | 穴深さ25D用<br>Hole Depth: 25D |             |                          | 穴深さ30D用<br>Hole Depth: 30D |     |     |     |     |   |    |   |   |   |  |  |  |  |
|  |   |  |             | L                        | $l$   | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock | 寸法(mm)<br>Dimensions(mm)   | 在庫<br>Stock | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock                | 寸法(mm)<br>Dimensions(mm) | 在庫<br>Stock | 寸法(mm)<br>Dimensions(mm)   | 在庫<br>Stock | 寸法(mm)<br>Dimensions(mm) |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.1  | 8.0   | MDW 0710PHT                                    | ●           | 94                       | 37.5  | MDW 0710XHGS               | □                        | 12          | L                          | L           | ●                        | 15                         | L                        | L           | ●                          | 20          | L                        | L                          | ●   | 25  | L   | L   | ● | 30 | L | L | ● |  |  |  |  |
| 7.2  |   | 0720PHT  | ●           |                          |   | 0720XHGS                   | □                        | 182         | 128                        | ●           | 204                      | 150                        | ●                        | 242         | 188                        | ●           | 279                      | 225                        | ●   | 317 | 263 |     |   |    |   |   |   |  |  |  |  |
| 7.3  |   | 0730PHT  | ●           |                          |   | 0730XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            | ●   |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.4  |   | 0740PHT  | ●           |                          |   | 0740XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.5  |   | 0750PHT  | ●           |                          |   | 0750XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.6  |   | MDW 0760PHT                                    | ●           |                          |   | MDW 0760XHGS               | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.7  |   | 0770PHT  | ●           |                          |   | 0770XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.8  |   | 0780PHT  | ●           |                          |   | 0780XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 7.9  |   | 0790PHT  | ●           |                          |   | 0790XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 8.0  |   | 0800PHT  | ●           |                          |   | 0800XHGS                   | □                        |             |                            | ●           |                          |                            | ●                        |             |                            | ●           |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 8.5  | 9.0   | MDW 0850PHT                                    | ●           | 100                      | 42.5  | MDW 0850XHGS               | □                        | ●           | 200                        | 145         | ●                        | 225                        | 170                      | ●           | 268                        | 213         | ●                        | 310                        | 255 | ●   | 353 | 298 |   |    |   |   |   |  |  |  |  |
| 9.0  |   | MDW 0900PHT                                    | ●           |                          | 45  | MDW 0900XHGS               | □                        | ●           | 208                        | 153         | ●                        | 235                        | 180                      | ●           | 280                        | 225         | ●                        | 325                        | 270 | ●   | 370 | 315 |   |    |   |   |   |  |  |  |  |
| 9.5  | 10.0  | MDW 0950PHT                                    | ●           | 106                      | 47.5  | MDW 0950XHGS               | □                        | ●           | 218                        | 162         | ●                        | 246                        | 190                      | ●           | 294                        | 238         | ●                        | 341                        | 285 |     |     |     |   |    |   |   |   |  |  |  |  |
| 10.0                                       |   | MDW 1000PHT                                    | ●           |                          | 50  | MDW 1000XHGS               | □                        | ●           | 226                        | 170         | ●                        | 256                        | 200                      | ●           | 306                        | 250         | ●                        | 356                        | 300 |     |     |     |   |    |   |   |   |  |  |  |  |
| 10.5                                       | 11.0  | MDW 1050PHT                                    | ●           | 116                      | 52.5  | MDW 1050XHGS               | □                        | ●           | 240                        | 179         | ●                        | 271                        | 210                      | ●           | 324                        | 263         |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 11.0                                       |   | MDW 1100PHT                                    | ●           |                          | 55  | MDW 1100XHGS               | □                        | ●           | 248                        | 187         | ●                        | 281                        | 220                      | ●           | 336                        | 275         |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 11.5                                       | 12.0  | MDW 1150PHT                                    | ●           | 122                      | 57.5  | MDW 1150XHGS               | □                        | ●           | 258                        | 196         | ●                        | 292                        | 230                      | ●           | 350                        | 288         |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 12.0                                       |   | MDW 1200PHT                                    | ●           |                          | 60  | MDW 1200XHGS               | □                        | ●           | 266                        | 204         | ●                        | 302                        | 240                      | ●           | 362                        | 300         |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 12.5                                       | 13.0  | MDW 1250PHT                                    | ●           | 128                      | 62.5  | MDW 1250XHGS               | □                        | ●           | 276                        | 213         | ●                        | 313                        | 250                      |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 13.0                                       |   | MDW 1300PHT                                    | ●           |                          | 65  | MDW 1300XHGS               | □                        | ●           | 284                        | 221         | ●                        | 323                        | 260                      |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 13.5                                       | 14.0  | MDW 1350PHT                                    | ●           | 134                      | 67.5  | MDW 1350XHGS               | □                        | ●           | 294                        | 230         | ●                        | 334                        | 270                      |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 14.0                                       |   | MDW 1400PHT                                    | ●           |                          | 70  | MDW 1400XHGS               | □                        | ●           | 302                        | 238         | ●                        | 344                        | 280                      |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 14.5                                       | 15.0  | MDW 1450PHT                                    | ●           | 140                      | 72.5  | MDW 1450XHGS               | □                        | ●           | 312                        | 247         |                          |                            |                          |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 15.0                                       |   | MDW 1500PHT                                    | ●           |                          | 75  | MDW 1500XHGS               | □                        | ●           | 320                        | 255         |                          |                            |                          |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 15.5                                       | 16.0  | MDW 1550PHT                                    | ●           | 146                      | 77.5  | MDW 1550XHGS               | □                        | ●           | 330                        | 264         |                          |                            |                          |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |
| 16.0                                       |   | MDW 1600PHT                                    | ●           |                          | 80  | MDW 1600XHGS               | □                        | ●           | 338                        | 272         |                          |                            |                          |             |                            |             |                          |                            |     |     |     |     |   |    |   |   |   |  |  |  |  |

ご注文方法：型番表記の□□に12または15,20,25,30を入れてご注文願います。(例：MDW 0710XHGS30)  
How to order: Please indicate 12, 15, 20, 25 or 30 in the □□ when ordering. (Example: MDW 0710XHGS30)

材種 Grade XHGS : ACX70  
PHT : ACX20

●印：標準在庫品、無印：受注生産品、灰色部分：製作可否は別途お問合せ願います。  
● mark : Standard Stocked item Blank : Made to order item Greyed items : Inquire about production.

### ■ 受注生産対応 上記寸法・在庫一覧以外の刃径及び長さについての製作は別途ご相談ください。

Made to Order Items: Inquire about production of drills in tool diameters and lengths not listed above or not in stock.

●全 長：400mmまで対応可能(ドリル外径にて対応出来ない場合もあります)  
Length: Can be made in lengths up to 400 mm (Some lengths are not possible due to drill diameter)

●刃 径： $\phi 2.5 \sim 20$ mm  
Diameter:  $\phi 2.5$  to  $\phi 20$  mm

●被削材：一般鋼・合金鋼以外の被削材については、標準在庫品でも対応可能ですが、専用設計による最適工具での対応も行います。  
Work material: Standard stocked items may be used for general steel and alloy steel but we recommend and provide optimized tools designed for the material.

### ■ 推奨切削条件 Recommended Cutting Conditions

( $v_c$ : 切削速度 m/min  $f$ : 送り mm/rev)  
Cutting Speed Feed Rate

| ドリル刃径<br>Drill diameter<br>$\phi D_c$ (mm) | 切削条件<br>Cutting condition | 軟鋼 Soft steel<br>(~200HB) | 一般鋼 General steel<br>(~250HB) | 合金鋼 Alloy Steel<br>(~300HB) | 高硬度材 Hardened steel<br>(~40HRC) | 鋳鉄 Cast Iron<br>FC・FCD材 |
|--|---------------------------|---------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| ~ $\phi 3.0$                               | $v_c$                     | 50 - 60 - 80              | 60 - 80 - 100                 | 40 - 55 - 70                | 30 - 40 - 50                    | 40 - 55 - 70            |
|  | $f$                       | 0.12 - 0.15 - 0.20        | 0.12 - 0.15 - 0.20            | 0.10 - 0.13 - 0.16          | 0.06 - 0.08 - 0.12              | 0.15 - 0.18 - 0.23      |
| ~ $\phi 5.0$                               | $v_c$                     | 50 - 60 - 80              | 60 - 80 - 100                 | 50 - 60 - 70                | 30 - 45 - 55                    | 50 - 60 - 70            |
|  | $f$                       | 0.15 - 0.20 - 0.25        | 0.15 - 0.23 - 0.30            | 0.12 - 0.15 - 0.20          | 0.08 - 0.10 - 0.14              | 0.17 - 0.20 - 0.35      |
| ~ $\phi 10.0$                              | $v_c$                     | 50 - 70 - 90              | 60 - 80 - 110                 | 50 - 65 - 80                | 30 - 50 - 60                    | 50 - 65 - 80            |
|  | $f$                       | 0.20 - 0.25 - 0.30        | 0.20 - 0.25 - 0.32            | 0.15 - 0.20 - 0.25          | 0.10 - 0.15 - 0.20              | 0.25 - 0.28 - 0.35      |
| ~ $\phi 16.0$                              | $v_c$                     | 60 - 80 - 100             | 60 - 90 - 120                 | 50 - 65 - 80                | 40 - 55 - 70                    | 50 - 65 - 80            |
|  | $f$                       | 0.25 - 0.30 - 0.35        | 0.25 - 0.30 - 0.35            | 0.15 - 0.23 - 0.27          | 0.12 - 0.15 - 0.23              | 0.25 - 0.30 - 0.35      |

注記：MQL給油時は低速側、内部給油及び2液ミスト時は高速側にてご使用ください

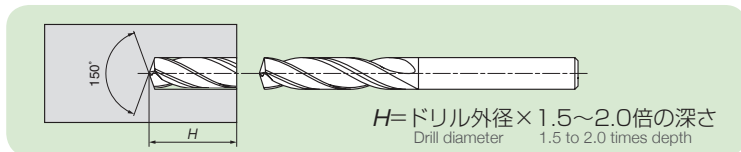
下限値—推奨値—上限値  
Min. - Optimum - Max.

Note: Use lower speed when using MQL coolant, and higher speed when using internal coolant or dual-liquid mist.

## ■ 推奨加工方法 Recommended Drilling Method

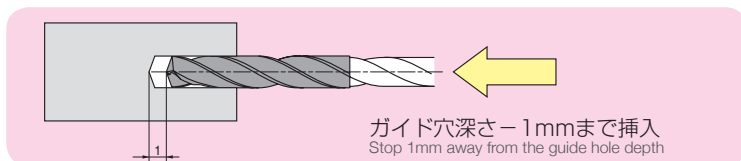
### ① 専用ガイド穴PHT型にてガイド穴加工 Drill a guide hole using the dedicated PHT series

- ガイド穴加工用ドリルPHT型は深穴加工用ドリルXHGS型と同じ呼び径をご使用ください。  
(ガイド刃径はロングドリル刃径に対して+0.02mm~+0.05mm大きく設計されています)
- Select the same nominal diameter for the dedicated guide hole drill PHT series as the deep hole drill XHGS series.  
(The guide drill diameter is designed +0.02 mm to +0.05 mm larger than the long drill diameter)



### ② 深穴ドリルXHGS型を低回転にてガイド穴へ挿入 Feed the deep hole drill XHGS series through the guide hole at low speed of revolution

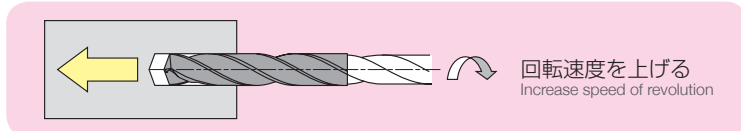
- 回転速度 Speed of revolution : 500min<sup>-1</sup>
- 送り速度 Feed Rate : 1,000~2,000mm/min



\* 設定切削速度でガイド穴へ挿入すると、ドリル外周振れによりドリル肩部が損傷する場合があります。

When feeding the drill into the guide hole at the set cutting speed, peripheral run-out may cause damage to the drill shoulder.

### ③ 設定切削速度まで回転速度を上げ、その後切削送り Increase speed of revolution until the set cutting speed is reached, and start normal drilling operation

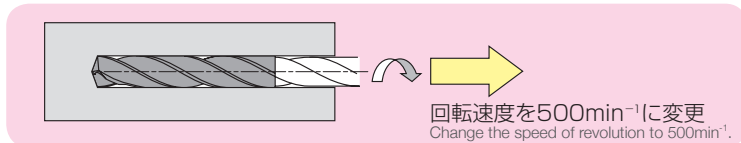


\* NC機によっては設定回転速度前に切削送り指示が出る事がありますので、切削送り指示前にドゥエル指示を入れる事を推奨します。

When using an NC machine, you may be instructed to begin normal drilling operation before the set speed of revolution is reached, so it is recommended to enter a dwell instruction before normal drilling operation is instructed.

### ④ 加工後、回転速度を下げ、被削材よりドリルを抜く After drilling, speed of revolution is reduced and the drill is retracted from the work material

- 回転速度 Speed of revolution : 500min<sup>-1</sup> 送り速度 Feed Rate : 1,000~2,000mm/min



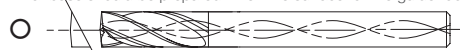
\* 高速回転でドリルを被削材から抜くと、ドリルが振れて折損する可能性があるため危険です。

Retracting a drill from the work material at a high speed of revolution is dangerous as it may result in breakage due to run out.

### ⑤ その他注意点 Other Notes

- ガイド用工具が斜め食付きの場合は、フラット座をあらかじめ加工しておく必要があります。

A flat base should be prepared when the surface for the guide tool is slanted.



エンドミル及びフラットドリルにて座ぐり加工 Endmill and flat drill spot facing



但し中低エンドミルは使用不可 Concave endmills cannot be used

- 深穴ドリルが斜め貫通する場合は貫通直前に送り速度を $f=0.05\text{mm/rev}$ に下げて加工してください。

If a deep hole drill exits through an angled surface, reduce feed rate to  $f=0.05\text{mm/rev}$  before drilling through.

## ■ 切削油について Coolant

### ① 内部給油時 Internal coolant supply

- 油剤はJIS A1種 1号相当 (エマルジョン) をご使用ください。  
Use JIS A1 class 1 oil or equivalent (emulsion).
  - ポンプ元圧 鋼: 1.5~2.0MPa (高压では冷却効果が強くなり、切りくず・摩耗に影響を与えます)  
鋳物・アルミ合金: 4.0~6.0MPa (冷却性を重視)
- Pump pressure Steel: 1.5 to 2.0MPa (Cooling effect increases at higher pressures, affecting chips/wear)  
Cast iron & aluminium alloy: 4.0 to 6.0MPa (Priority on cooling)

### ② 内部MQL時 Internal MQL

- エアー圧 : 0.5MPa以上  
Air pressure : 0.5MPa or higher
- 吐出量 : ご使用装置の最大吐出量設定を推奨します。\*アルミ合金への適用はメーカーにご相談ください。  
Discharge volume : It is recommended to set the maximum discharge volume possible on the machine. \* Consult the manufacturer before using with aluminium alloy.

### ③ 内部2液ミスト時 Internal dual-liquid mist

- エアー圧 : 0.5MPa以上  
Air pressure : 0.5MPa or higher
- 吐出量 : ご使用装置の最適値での加工を推奨します。  
Discharge volume : It is recommended to use the optimum value of the machine when drilling.

## ■ 使用実例 Application Examples

**半導体製造装置部品 (SUS304)** Semiconductor Manufacturing Machine Component (SUS304)


・使用工具: MDW0400PHT, MDW0400XHGS25 (φ4.0mm 25D)  
Tools

・設備: 立形マシニングセンタ (BT40)  
Machine Vertical Machining Center

・切削条件:  $v_c=44\text{m/min}$ ,  $f=0.08\text{mm/rev}$ ,  $H=105\text{mm/hole}$  (5穴/台)  
Cutting Conditions 5 Per Unit

・給油: 内部給油 (エマルジョン、ポンプ圧2MPa)  
Coolant Internal Coolant Emulsion, Pump Pressure

・寿命: 60台 (31.5m/reg)  
Tool Life Units



**加工時間1/3達成**  
他社製ドリルは切りくず詰まりにより、ステップ加工を実施。  
Achievement of a one-third processing time  
The drilling made in other companies carries out step processing by paring jam.

**発電機用部品 (インコネル)** Generator Component (Inconel)

・使用工具: MDW1100PHT, MDW1100XHGS (φ11.0mm)  
Tools

・設備: 横形マシニングセンタ (HKA63)  
Machine Horizontal Machining Center

・切削条件:  $v_c=30\text{m/min}$ ,  $f=0.10\text{mm/rev}$ ,  $H=300\text{mm}$   
Cutting Conditions

・給油: 内部給油 (エマルジョン、ポンプ圧2MPa)  
Coolant Internal Coolant Emulsion, Pump Pressure

・寿命: 3穴 (0.9m/reg)  
Tool Life Holes



**加工能率13倍達成**  
継続使用可能。  
Achievement of processing efficiency 13 times  
Able to continue cutting.

**自動車部品 (FCA)** Automotive Component (FCA)

・使用工具: MDW0800PHT, MDW0800XHGS (φ8.0mm)  
Tools

・設備: 横形1軸NC  
Machine Horizontal Single-axis NC Machine

・切削条件:  $v_c=60\text{m/min}$ ,  $f=0.32\text{mm/rev}$ ,  $H=250\text{mm}$   
Cutting Conditions

・給油: 水ミスト (エア一元圧0.5MPa 吐出量約20cc/h)  
Coolant Water Mist Air Pressure Volume Approx.

・寿命: 600台 (150m/reg)  
Tool Life Units



**自動車部品 (S38C)** Automotive Component (S38C)

・使用工具: MDW0500PHT, MDW0500XHGS (φ5.0mm)  
Tools

・設備: 横形1軸NC  
Machine Horizontal Single-axis NC Machine

・切削条件:  $v_c=80\text{m/min}$ ,  $f=0.28\text{mm/rev}$ ,  $H=85\text{mm/hole}$  (3穴/台)  
Cutting Conditions 3 Per Unit

・給油: MQL (エア一元圧0.5MPa 吐出量約4cc/h)  
Coolant Air Pressure Volume Approx.

・寿命: 500台 (113m/reg)  
Tool Life Units

**自動車部品 (S38C, SCM440)** Automotive Component (S38C, SCM440)

・使用工具: MDW0590PHT, MDW0590XHGS (φ5.9mm)  
Tools

・設備: 横形1軸NC  
Machine Horizontal Single-axis NC Machine

・切削条件:  $v_c=65\text{m/min}$ ,  $f=0.16\text{mm/rev}$ ,  $H=45\text{mm/hole}$  (4穴/台)  
Cutting Conditions 4 Per Unit

・給油: MQL (エア一元圧0.5MPa 吐出量約3cc/h)  
Coolant Air Pressure Volume Approx.

・寿命: 500台 (90m/reg)  
Tool Life Units

◆安全にお使いいただくために◆



- 高温の切りくずが飛散したり長く伸びた切りくずが排出されることがありますので、安全カバーや保護メガネ等の保護具を使用し、防災・防火に十分ご注意ください。
- 鋭い切れ刃を持っているため取扱いにご注意ください。
- 使用方法を誤ったり、使用条件が不適切な場合、工具破損、飛散を招きますので推奨条件の範囲内でご使用ください。
- 不水溶性の切削液をご使用になる場合は、自動消火装置を設置するなどの対策を講じて頂き、火災にくれぐれもご注意ください。
- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.
- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

# 住友電気工業株式会社

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切削工具の最新情報を発信中  
<http://www.sumitool.com>



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[夜間相談サービス] 9:00~12:00, 13:00~17:00 (土・日・祝日を除く)