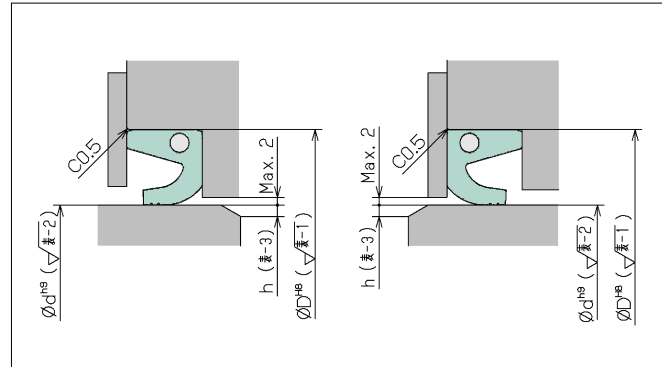
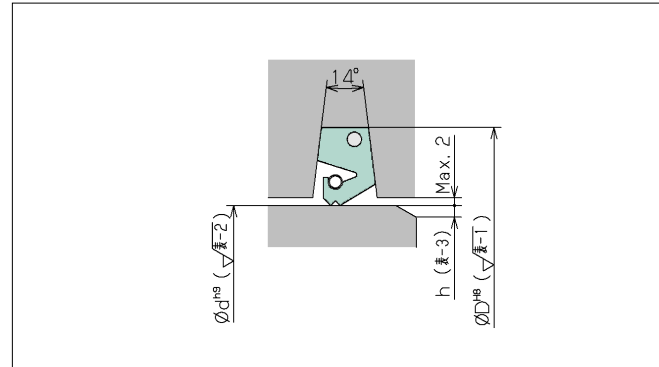


Housing design related to dimension, seal type and shaft requirements, refer to the following table 1~3.

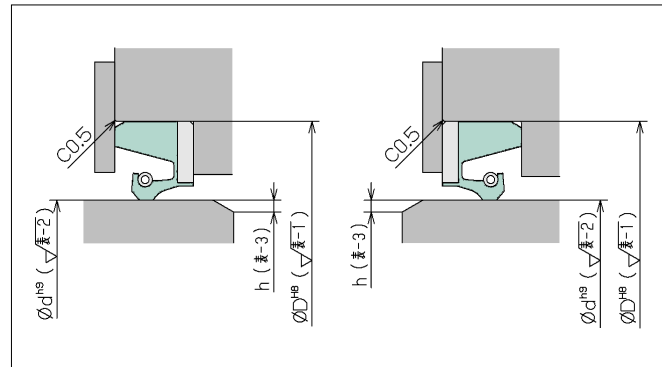
Prop ring type DWT·DWH·SWA·SWS·SW and etc.



Trapezium gutter seal SWX·DWZ



Metal ring type SGA·SGAP·DP·DPC and etc.



L shape metal ring type DY·DYP·DYA·DYB·DYS·DYM and etc.

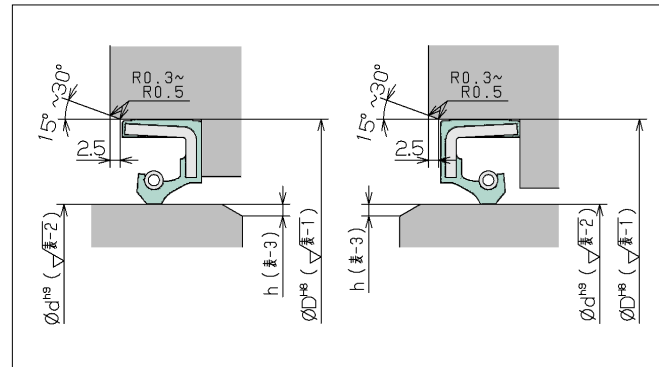


Table-1 Design of seal housing

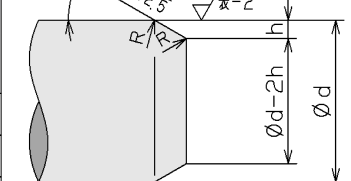
| Materials | Usable seals | Surface roughness | Acceptable dimension tolerance of machining process on seal housing |
|---|---|--|---|
| Carbon steel for mechanical structure Low-alloy steel Stainless steel Cast iron Brass ※Coefficient of heat expansion is small, hardly resulted in wound. | Every types of seals are usable | Ra3.2~0.4μm and Rz12.5~1.6μm For seals with outer ring, more finished surface than the value above is recommended. | For seals smaller than 400mm in diameter. H8 For seals bigger than 400mm in diameter. H7 |
| Light metal (aluminum, etc.) Resin ※Coefficient of heat expansion is big, easily resulted in wound | Outer Metal ring type seals (ex DYM type) are not usable. | ※Housing surface roughness is easy to achieved via machining. | (JIS B 0401-2) |

※Chamfer the seal housing edges up to R0.5mm

Table-2 Shaft design

| Material | Evaluation | Evaluation/Point for attention | Hardness (HRC) | Surface roughness |
|--|------------|--|----------------------------------|---|
| Carbon steel for mechanical structure Low alloy steel | ◎ | Good material for shaft because it is proper in hardness, easy for machining and fine roughness could be easily achieved, however if hard plating been executed on shaft surface, peer off on plating should be carefully checked. | Oil seal Grease seal 30~40 | Ra0.63~0.2μm and Rz2.5~0.8μm 【Machining pattern on shaft surface】 Machining lead pattern vertical to shaft axis is recommended. ※Refer to chapter 3 |
| Stainless | ○ | Stainless steel is applied often in corrosion surrounding, the material applicable to harden heat treatment is required. | Dust seal More than 40 | |
| Cast iron | △ | Pin holes on shaft surface arising from casting process may fail in sealing, on which should be pay attention. | | |
| Ceramic | △ | Porous surface make it difficult to keep the oil film on contact surface, lip will soon be worn out in that case. | | |
| Resin | △ | The friction heat generated is hardly conducted out of the seal lip because of its low heat conductivity, thus shortens the seal life, also the hardness of resin is lower than steel, shaft is easily worn. | | |

Table-3 Dimension of chamfered shaft edges (Insert taper)

| Shaft diameter φd (mm) | h (mm) | | | Shape and dimension of chamfered shaft edges.  |
|---------------------------|--|-------------------------------|------------|--|
| | DWT,DWH,DWZ,SWA,DY,DYA,DYS DYAM,DYAP,DYB,DYBM,DYM,DYP DP,DPC,MJD,SGA,SGAP DRT,DYR,DGA,DGB,DGC | SW,SWX KO,KD DYH DGK | SWS DWS | |
| ~100 | 3.5 | 2.5 | 5 | Recommended angle θ Oil seal : 20°~30° Dust seal : 15°~25° |
| 100~300 | 4.5 | 3 | 6 | |
| 300~500 | 5 | 3.5 | 7 | |
| 500~800 | 5.5 | 4 | 8 | |
| 800~ | 6 | 4.5 | 8 | |

※ In case having difficulty in above shaft insert taper, Please contact our sales department for installation tool.