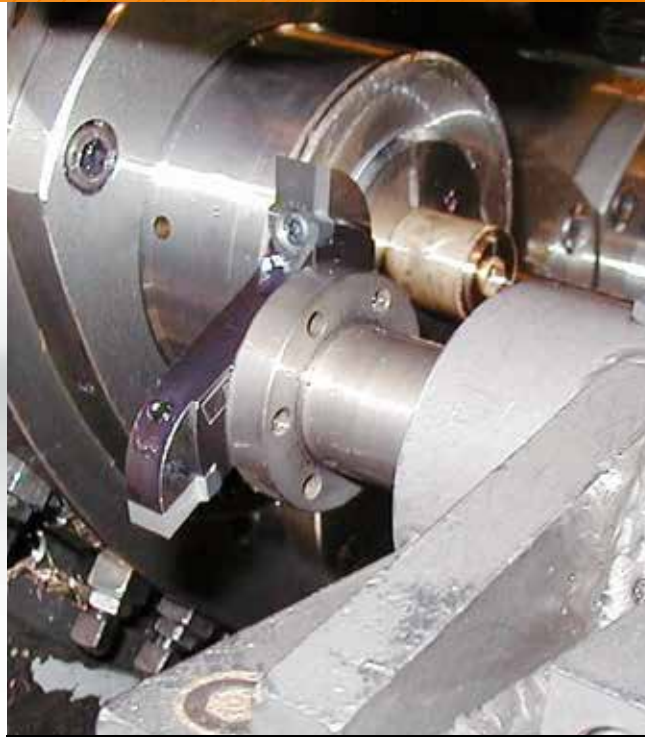
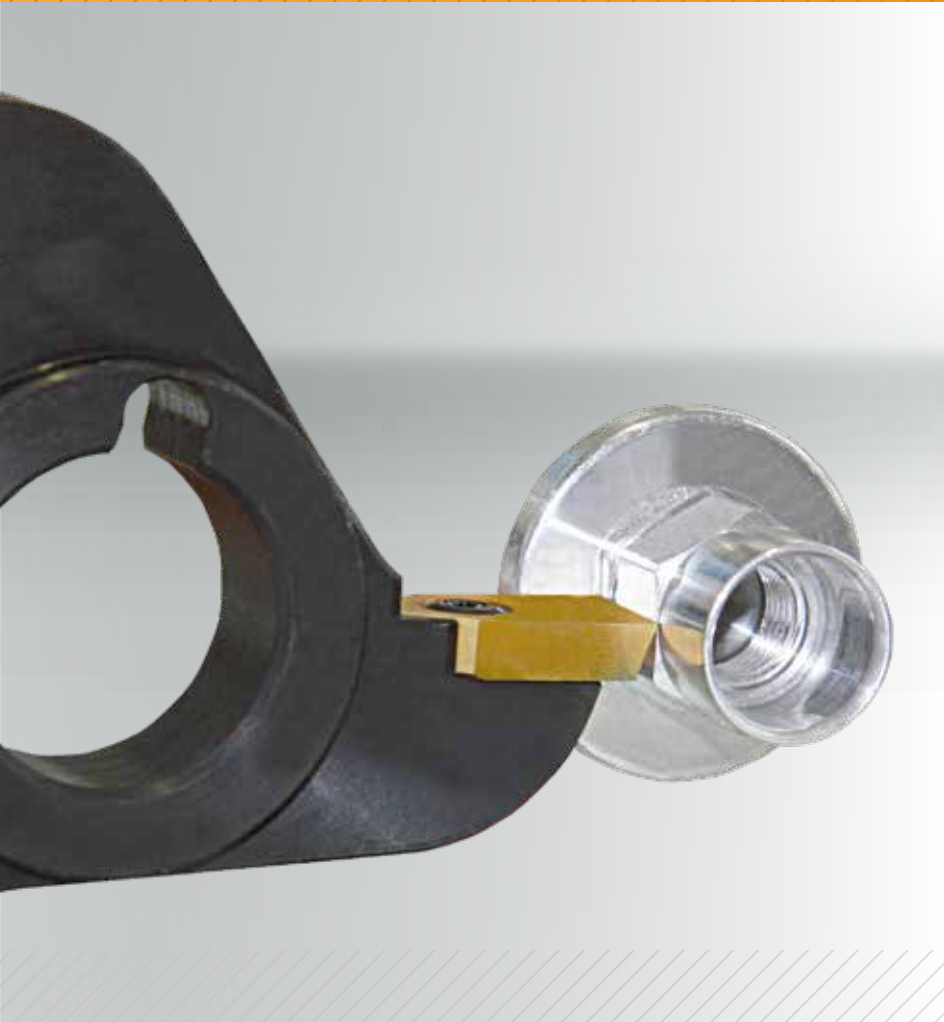


Machining technology

Polygon Turning



Establishing flats efficiently
through polygon turning.

Schwab

Cost efficient manufacturing on the lathe:

Efficient Flats through Polygon Turning!

When it comes to turned parts, particularly in the fittings and hydraulics industry, machining of flats is a time-consuming process.

This time factor is associated with a huge expense. Specializing in insertable form tool systems, Schwanog has designed an impressive solution which drastically reduces costs. Using the Schwanog polygon system, flats can be produced directly on the lathe using polygon cutters and eliminating the time-consuming milling process.

Application:

Using a polygon turning attachment or a tool spindle operating in sync, Polygon turning is used for parts made from non-ferrous metals i.e. brass, aluminum and steel i.e. 12L14. The radial plunging procedure also allows flats being machined behind the collar. Axial, longitudinal turning is used to create long flats.

Description of process:

When polygon turning, the part and cutter head turn in the same direction. The cutter head generally rotates at twice the speed of the part, with each cutting edge turning a pair of opposite flats on the part. This means that the number of flats produced during polygon turning is twice the amount of the cutting edges.

Flats:

Any number of flats can be produced with the Schwanog polygon turning system. Due to the complexity of the subject, we recommend contacting us to discuss your part in detail.

Info:

Depending on the outside (SK) diameter, the flat width and the amplification ratio, the flats are produced with a negligible degree of crowning.

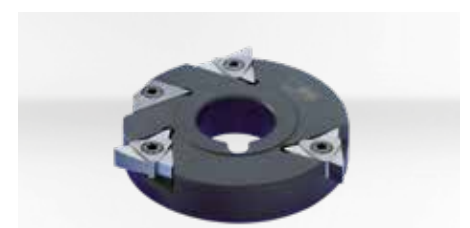
Schwanog will find the most cost-effective solution to suit your needs.

Advantages:

- ❑ Flats are produced directly on the lathe in a single process.
- ❑ Elimination of milling process
- ❑ Polygon turning is quicker than milling.
- ❑ Integrated production on a single machine increases process reliability.
- ❑ Schwanog polygon system cuts costs drastically.



Polygon turning with the Schwanog PWP system: for plunging.

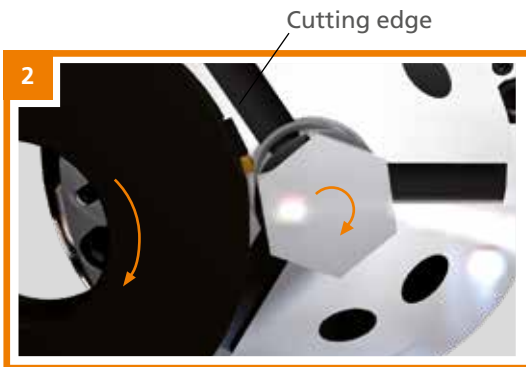


Polygon turning with the Schwanog WEP system: for plunging and longitudinal turning. Cutter head is also available in heavy metal.

Production sequence



Tool and part rotate in the same direction.



Start position (tool engagement) tool starts cutting.

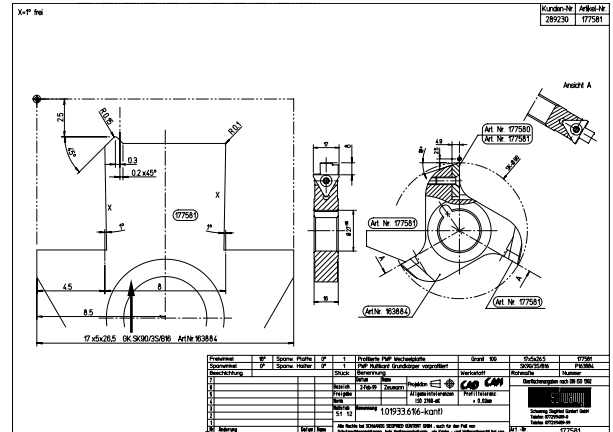


Flat is being produced.

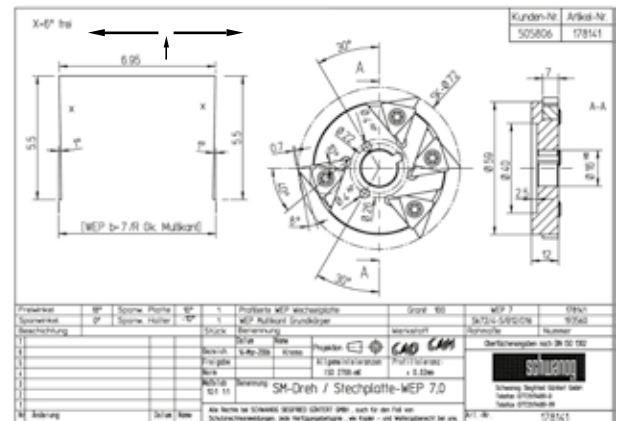


Tool disengages.

Plunging (radial) procedure



Longitudinal (axial) turning (Plunge turning also possible)



Visit our website at www.schwanog.com and watch the 3D animation for polygon turning.

Take this opportunity and use our capability to lower your part costs and thus increasing your profitability. We are looking forward to show you how, just call or email us your application along with part drawing.

Insertable tooling systems

Recommended cutting speeds and feeds

Amplification ratio 2:1 $V_{C\text{total}} = V_{C\text{tool}} + V_{C\text{component}}$

$$V_{C\text{tool}} = 2 \cdot \frac{d_{\text{tool}} \cdot \pi \cdot n_{\text{main spindle}}}{1000} \quad V_{C\text{component}} = \frac{d_{\text{width across flats}} \cdot \pi \cdot n_{\text{main spindle}}}{1000}$$

Materials	Aluminum	Brass	Free cutting steel	Alloys
Plunging				
Cutting speed $V_{C\text{total}}$ in m/min.	700	600	400	300
Feed rate in mm/rev	0,08	0,05	0,03	0,01
Longitudinal Turning				
Cutting speed $V_{C\text{total}}$ in m/min.	1100	900	550	400
Feed rate in mm/rev	0,15	0,1	0,05	0,03



OD Grooving



OD Grooving
for rotary
transfer machines



ID Grooving



ID Grooving and
turning with WSI



Form drilling



Solid Carbide drills



Shave Tools



Skiving Tools



Polygon turning



Broaching
of Serrations




OD Whirling





ID Whirling Tools
(Thread Mills)




Parts selector

 **Schwanog · Siegfried Güntert GmbH**
Niedererschacher Str. 36 · D-78052 VS-Oberschach
Tel. +49 (0) 77 21 / 94 89-0 · Fax +49 (0) 77 21 / 94 89-99
www.schwanog.com · info@schwanog.com


 **Schwanog LLC**
1301 Bowes Road, Suite A · Elgin, IL 60123
Phone: 847-289-1055 · Fax: 847-289-1056
www.schwanog.com · info.usa@schwanog.com


 **Schwanog France**
ZAC des Léchères · 65 Clos de l'Ouche · F-74460 Marnaz
Tel. +33 450 18 65 16 · Fax +33 450 18 47 75
www.schwanog.com · info.france@schwanog.com

 **Schwanog Indexable Form Tools (Kunshan) Co. Ltd**
German Industry Park II · #329 Jujing Road
215321 Kunshan, Jiangsu Province
Phone: 0512 8788 0075
www.schwanog.com · info.china@schwanog.com

 **Schwanog · Siegfried Güntert GmbH**
CZ-76326 Pozlovice
Phone +420 604 577 616
www.schwanog.com · vladimir.hrib@schwanog.com

 **Schwanog · Siegfried Güntert GmbH**
PL-05-410 Józefów
Phone +48 606 177 025
www.schwanog.com · lukasz.kucinski@schwanog.com

 **Schwanog · Siegfried Güntert GmbH**
SE-33376 Reftele
Phone +46 734 472 100
www.schwanog.com · jonas.lund@schwanog.com

 **UBR SRL**
Viale Italia 95 · 25064 Gussago (Brescia)
Phone +39 030 2520842 · Fax +39 030 2521481
www.ubr.it · ubr@ubr.it