

RE 27 518/02.03

Replaces: 11.02

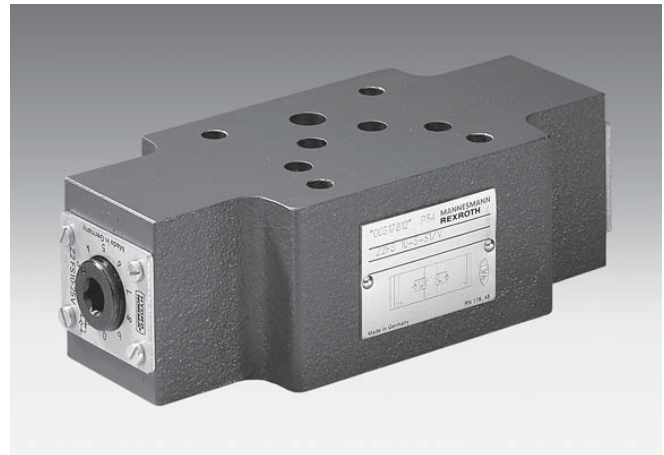
**Double throttle check valve
Type Z2FS 10**

Nominal size 10

Series 3X

Maximum operating pressure 315 bar

Maximum flow 160 L/min



H/A/D 5556/96

Type Z2FS 10 –5-3X/V

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Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 Form A, ISO 4401 and CETOP–RP 121 H
- For limiting the main or control fluid flow of 2 actuator connections
- 3 adjustment elements:
 - Lockable rotary knob with scale
 - Spindle with internal hexagon and scale
 - Rotary knob with scale
- For meter-in or meter-out control

Ordering details

Z2FS 10		–3X/		V	*
Double throttle check valve					Further details in clear text
Nominal size 10	= 10			V =	FKM seals (other seals on request)
Throttle check valve ports A and B	= – ¹⁾				⚠ Attention! The compatibility of the seals and pressure fluid has to be taken into account!
Throttle check valve port A	= A				
Throttle check valve port B	= B				
Adjustment element				No code =	(With two throttle check valves) Meter-in or meter-out throttling (this valve can be rotated)
Lockable rotary knob with scale	= 3 ²⁾			S =	(...A.–3X/S) meter-in on port A (...B.–3X/S) meter-in on port B
Spindle with internal hexagon and scale	= 5			S2 =	(...A.–3X/S2) meter-out on port A (...B.–3X/S2) meter-out on port B
Rotary knob with scale	= 7			3X =	Series 30 to 39 (30 to 39: unchanged installation and connection dimensions)

**Preferred types, see page 2,
are readily available**

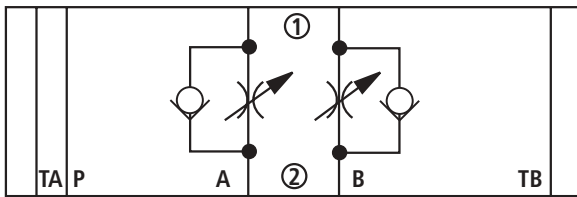


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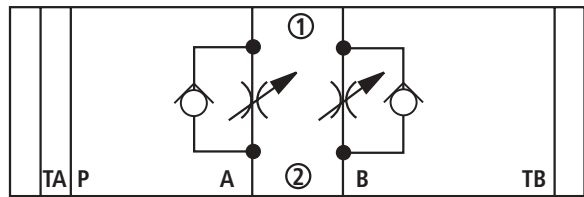
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Symbols (1) = component side, (2) = subplate side)

Z2FS 10 ..-3X/.. (meter-in)



Z2FS 10 ..-3X/.. (meter-out)



Preferred types (readily available)

Type	Material number
Z2FS 10-5-3X/V	R900517812
Z2FS 10A5-3X/S2V	R900523578
Z2FS 10A5-3X/SV	R900517813

Further preferred types and standard units can be found in the EPS (Rexroth Price List).

Function, section

Valve type Z2FS 10 is a double throttle check valve of sandwich plate design.

It is used to limit the main or pilot oil flow of one or two actuators. Two symmetrically arranged throttle check valves limit the flow in one direction and allow free-flow in the opposite direction.

With meter-in control the pressure fluid passes through port A1 via the throttle area (1), that is created by the valve seat (2) and the throttle spool (3.1), to the actuator A2. The throttle spool (3.1) is axially adjustable via the adjustment screw (4) and thus enables the throttling point to be set (1).

Simultaneously the pressure fluid present in port A1 is passed to the piston side of the throttle spool (6) via drilling (5). The applied pressure, in addition to the spring force holds the throttle spool (3.1) in the throttling position.

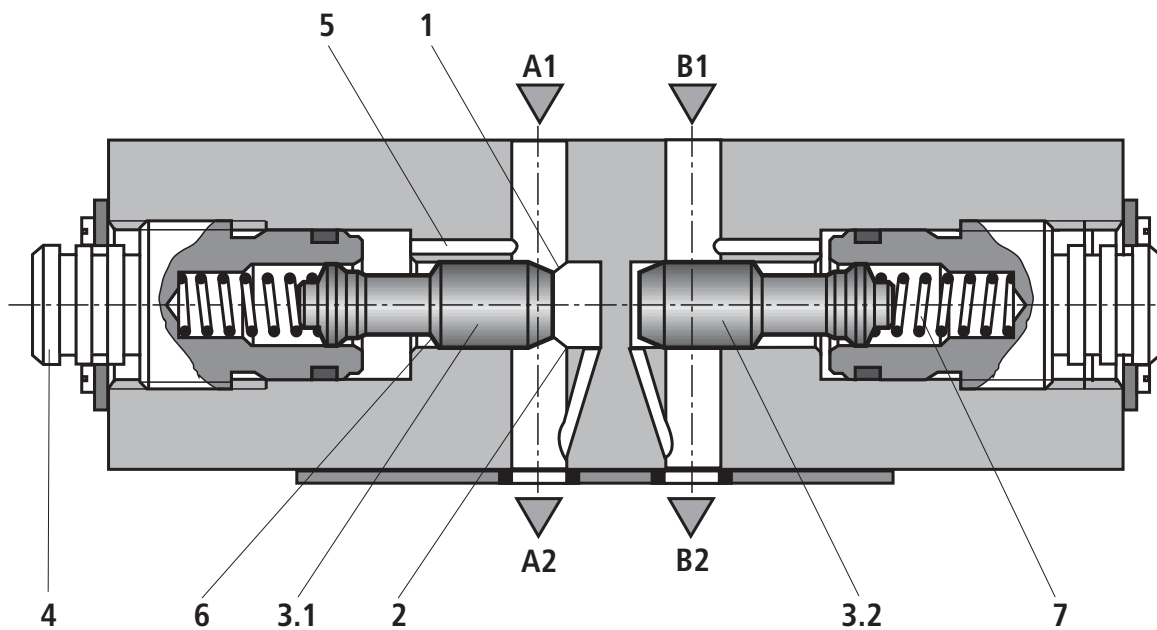
The pressure fluid returning from actuator B2 moves the throttle spool (3.2) against the spring (7) and thus enables unrestricted flow via the check valve. Depending on the installation orientation the throttling effect may be arranged as meter-in or meter-out control.

Limiting the main fluid flow

In order to change the velocity of an actuator (main fluid flow), the double throttle check valve is installed between the directional valve and the subplate.

Limiting the control fluid flow

With pilot operated directional control valves, the double throttle check valve is installed as a switching time adjustment (control fluid flow). It is fitted between the main valve and the pilot valve.



Type Z2FS 10 -5-3X/V (meter-in)

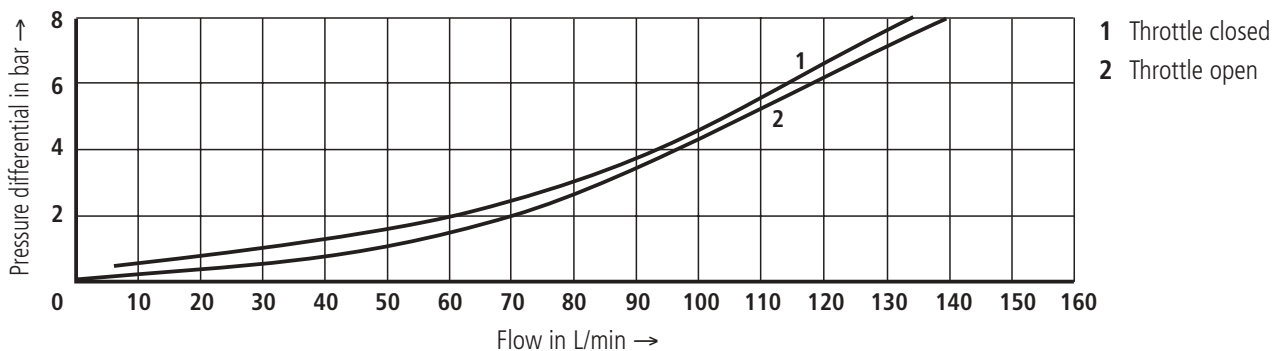
Technical data (for applications outside these parameters, please consult us!)

General		
Installation		Optional
Ambient temperature range	°C	-20 to +80 for FKM seals
Weight	kg	Approx. 3.1
Hydraulic		
Pressure fluid		Mineral oil (HL, HLP) to DIN 51 524; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic ester); Other pressure fluids on request
Cleanliness class to ISO code		Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 ¹⁾
Pressure fluid temperature range	°C	-20 to +80 for FKM seals
Viscosity range	mm ² /s	10 to 800
Operating pressure, max.	bar	Up to 315
Flow, max.	L/min	Up to 160

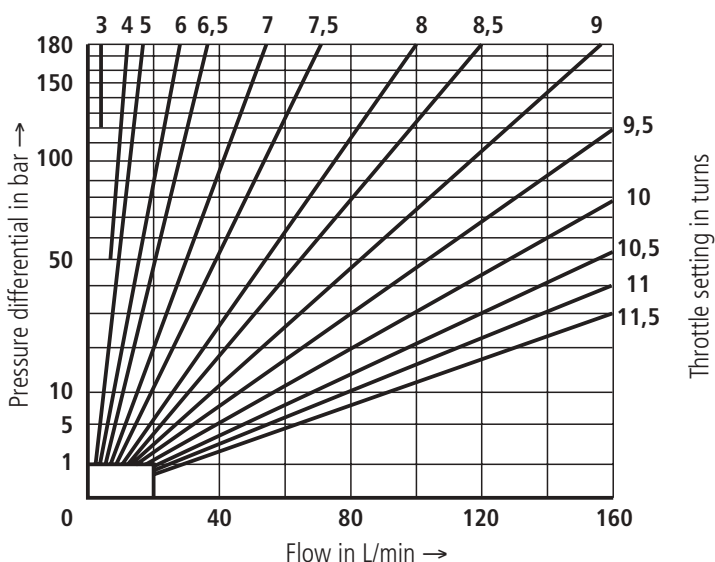
¹⁾ The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.
For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

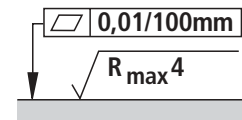
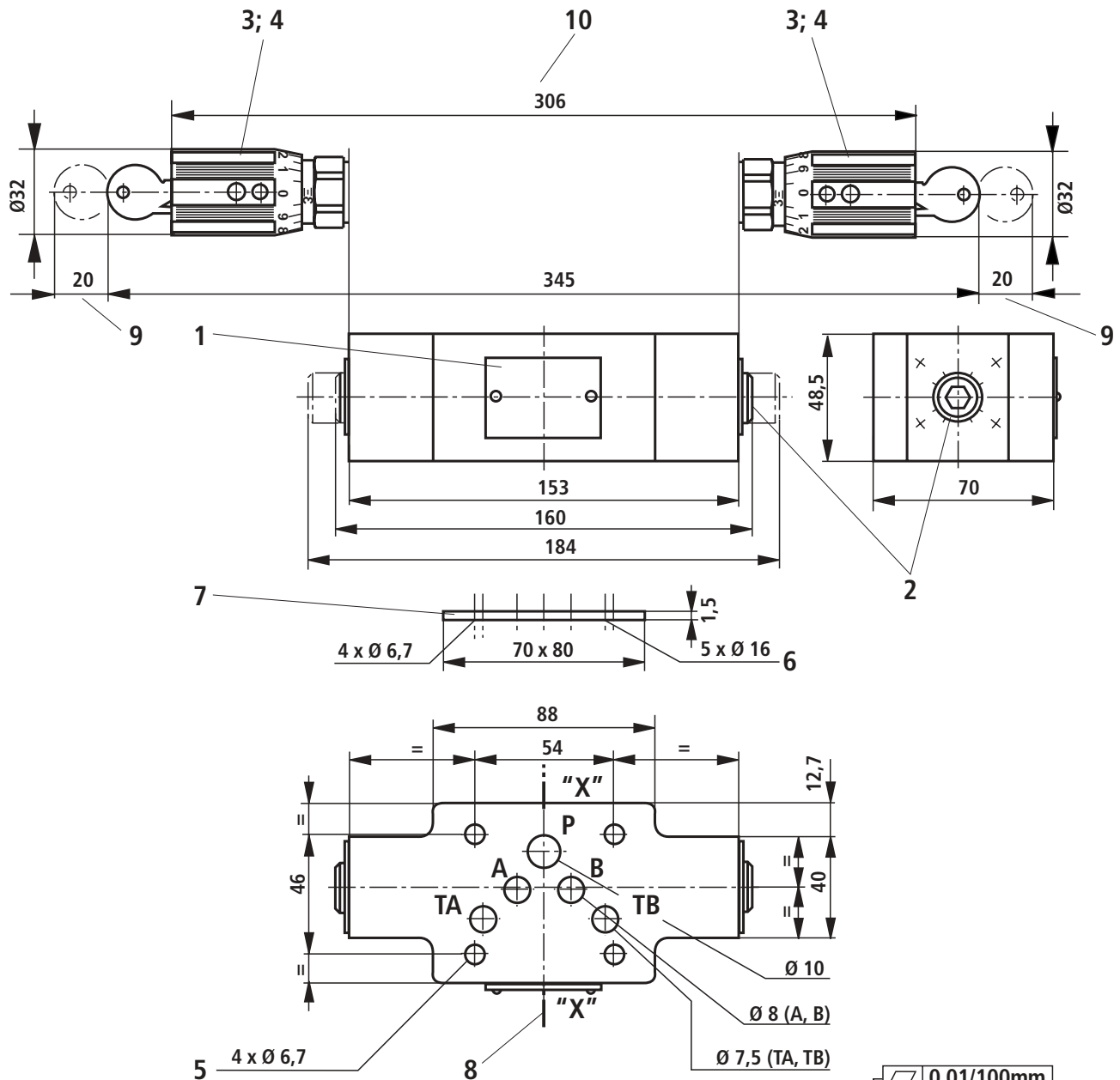
Characteristic curves (measured at $\nu = 41 \text{ mm}^2/\text{s}$, $\vartheta_{\text{oil}} = 40 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$)

Pressure differential Δp in relation to the flow q_v across the check valve



Pressure differential Δp in relation to the flow q_v at a constant throttle setting





Required surface finish of the mating piece

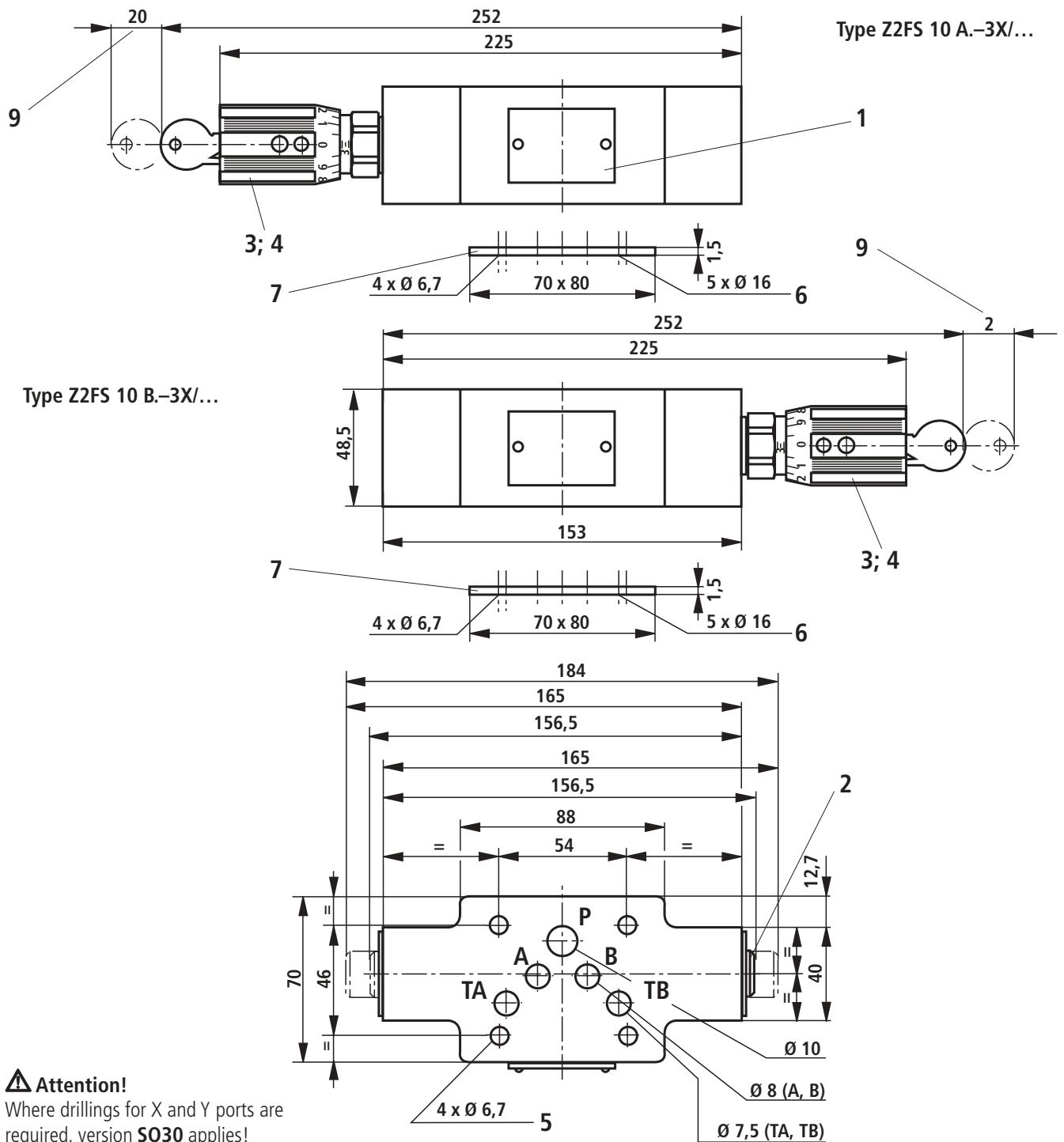
⚠ Attention!

Where drillings for X and Y ports are required, version **S030** applies!
(e. g. NS 10 pilot operated directional valves)

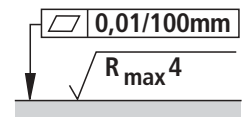
- 1 Name plate
- 2 Adjustment "5"
Spindle to adjust the flow cross-section (internal hexagon 8A/F)
 - Anti-clockwise rotation = increase in flow
 - Clockwise rotation = decrease in flow
- 3 Adjustment "3"
- 4 Adjustment "7"
- 5 4 through holes for valve fixing screws
- 6 Identical seal rings for ports A, B, P, TA, TB
- 7 R-ring plate
- 8 To change from meter-in to meter-out, rotate the unit about the "X"-"X" axis
- 9 Space required to remove the key
- 10 Only for adjustment "7"

Valve fixing screws

M6 DIN 912-10.9,
Tightening torque $M_A = 15.5 \text{ Nm}$
must be ordered separately.



- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Required surface finish of the mating piece

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