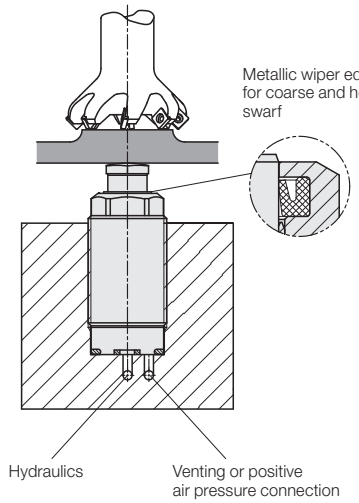
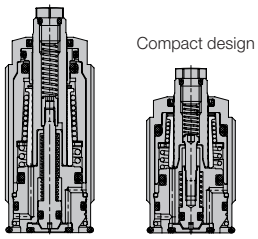
Threaded-Body Work Supports

with metallic wiper edge, 4 sizes single acting, max. operating pressure 70 bar

Advantages

- High support force at 70 bar
- 4 sizes available
- Sizes 1 and 2 are available in 2 lengths
- Space-saving threaded-body version
- Metallic wiper edge and FKM wiper
- Connection for venting and positive air pressure protection
- Interior parts protected against corrosion
- Standard flow rate throttle
- Mounting body as accessory
- Mounting position: any
- Connection of positive air pressure protection up to 4 bar is possible





Application

Hydraulic work supports are used to provide a self-adjusting rest for workpieces and avoid their vibration and deflection under machining loads. This series offers very high support forces already at 70 bar and can directly be connected to the low-pressure hydraulic of the machine tool.

Description

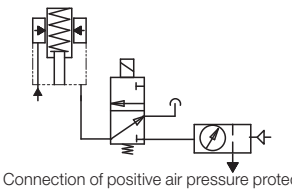
The support plunger is hydraulically extended by a small piston and contacts the workpiece with spring force. The pressure spring can be easily exchanged. Locking of the support plunger through the slotted clamping sleeve is made by means of a ring-shaped conical hydraulic piston where the locking force is transmitted by a low-friction ball shell.
Unlocking and retracting of the support plunger is made by spring force.

Important notes

Work supports are not suitable to compensate side loads. The support plunger must not be stressed by tensile load.
The admissible load force is valid for static or dynamic load. Machining forces can generate vibrations, whose amplitude exceeds far an average value, and this can cause yielding of the support plunger.
Operating conditions, tolerances and other data see data sheet A 0.100.

Positive air pressure connection

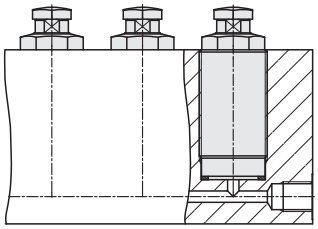
To guarantee functioning of the work supports, a vent port is imperative. No liquids may enter the end of the bore hole (see also data sheet G 0.110 „Venting of the spring area“).
It is recommended to connect positive air pressure protection. While locking the support plunger, the positive air pressure must not exceed 4 bar. If the support plunger is not locked, the positive air pressure must be reduced to a maximum of 0.2 bar.
The positive air pressure connection must be free of oil and water.



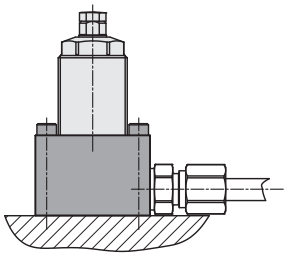
Connection of positive air pressure protection

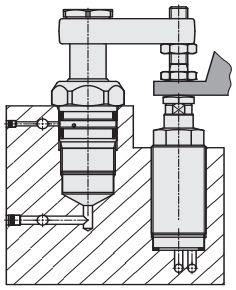
Installation and connecting possibilities

Drilled channels



Pipe thread
with accessory mounting body





Combination with clamping elements

If clamping will be made onto the work supports, the clamping force must be adjusted to the admissible load, so that there will be still a sufficient reserve to compensate the machining forces.

Rough estimate:

Min. load force ≥ 2 x clamping force

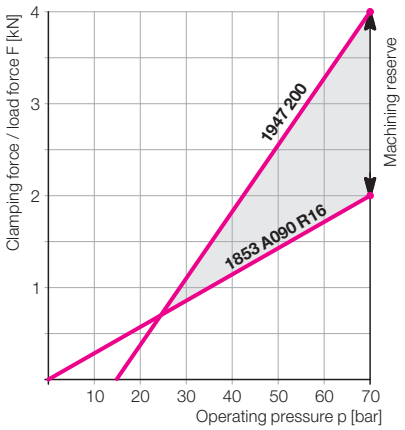
Example

Threaded-body work support 1947 200
Swing clamp 1853 A090 R16
Operating pressure 70 bar

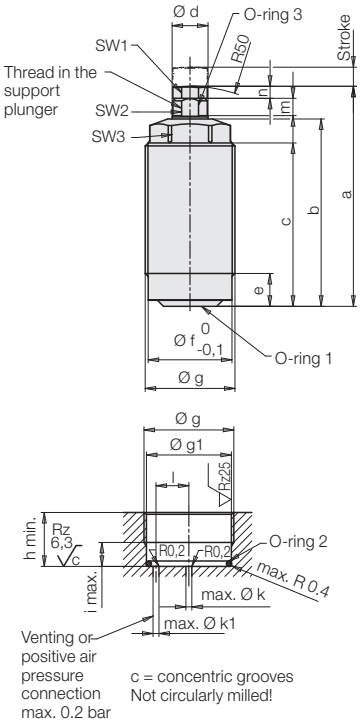
As per diagram:

Adm. load	4.0 kN
– Effective clamping force	2.0 kN
Reserve for machining force	2.0 kN

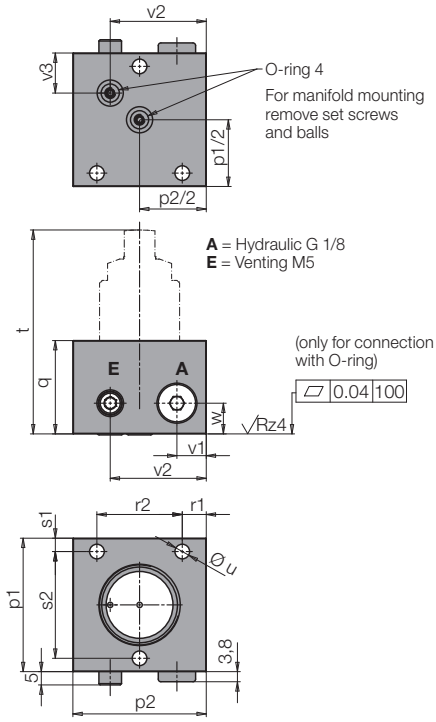
If this is not sufficient, the pressure for the swing clamp has to be reduced.



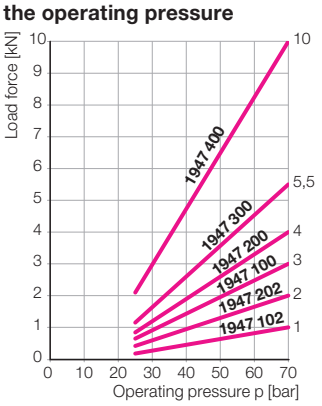
Size		1 short	1	2 short	2	3	4
Adm. load force (70 bar)	[kN]	1	3	2	4	5.5	10
Load force at p (bar)	[kN]	0.019xp–0.30	0.053xp–0.68	0.035xp–0.46	0.07xp–0.91	0.096xp–1.25	0.175xp–2.28
Support plunger Ø d	[mm]	10	10	12	12	15	16
Stroke	[mm]	5	6.5	6	8	8	10
Required oil per stroke	[cm3]	0.5	0.6	0.6	0.9	1.3	2
Admissible flow rate	[cm³/s]	25	25	25	25	25	25
Recommended minimum pressure	[bar]	25	25	25	25	25	25
Max. pressure in the return line	**[bar]**	**1**	**1**	**1**	**1**	**1**	**1**
Spring force min./max.	[N]	3.7 / 6.6	3.7 / 9.5	5.8/10.9	7.0 / 12.0	9.7 / 14.8	8.5 / 14.8
Elastic deformation with load and 70 bar	[µm/kN]	10	9	8.5	6	6	3.5
Operating temperature	[°C]	0…70	0…70	0…70	0…70	0…70	0…70
Tightening torque	[Nm]	32	32	50	50	63	80
Weight, approx.	[kg]	0.15	0.2	0.2	0.25	0.35	0.75
a	[mm]	48.5	66	52	73	69	82
b	[mm]	40	57	41	62	58	71
c	[mm]	34	49	34	54	49	62
e	[mm]	8.5	8.5	9.5	9.5	9.5	9.5
Ø f – 0.1	[mm]	24	24	28	28	34	43
g	[mm]	M26x1.5	M26x1.5	M30x1.5	M30x1.5	M36x1.5	M45x1.5
Ø g1	[mm]	24.5	24.5	28.5	28.5	34.5	43.5
h min.	[mm]	16	16	17	17	18	21
i max.	[mm]	7	7	9	9	8	8.5
Ø k max.	[mm]	8	8	10	10	10	12
Ø k1 max.	[mm]	2.5	2.5	3	3	5	6
l	[mm]	9.5	9.5	11	11	13	15
m	[mm]	5	5	6	6	6	6
n	[mm]	3	3	4	4	4	4
p1	[mm]	45	45	50	50	60	70
p2	[mm]	45	45	50	50	50	55
q	[mm]	35	35	35	35	35	35
r1	[mm]	6.5	6.5	9	9	6	8.5
r2	[mm]	32	32	32	32	38	38
s1	[mm]	4.5	4.5	5	5	6	6
s2	[mm]	36	36	40	40	48	58
t	[mm]	65.5	83	69	90	84	97
Øu	[mm]	5.5	5.5	5.5	5.5	6.5	6.5
v1	[mm]	8.5	8.5	11	11	11	13.5
v2	[mm]	32	32	36	36	38	42.5
v3	[mm]	12.5	12.5	15	15	20	25
w	[mm]	11.5	11.5	11.5	11.5	11.5	11.5
SW 1	[mm]	8	8	10	10	11	11
SW 2	[mm]	8	8	10	10	13	13
SW 3	[mm]	22	22	24	24	30	36
Thread in the support plunger		M6x8	M6x8	M8x12	M8x13	M10x13	M10x13
Part no.		**1947102**	**1947100**	**1947202**	**1947200**	**1947300**	**1947400**
Accessories							
Mounting body complete		**0346809**	**0346809**	**0346810**	**0346810**	**0346811**	**0346812**
Spare parts							
O-ring 1		**3002264**	**3002264**	**3000335**	**3000335**	**3000005**	**3000028**
O-ring 2		**3002170**	**3002170**	**3001640**	**3001640**	**3002171**	**3002172**
O-ring 3		**3002167**	**3002167**	**3001526**	**3001526**	**3000275**	**3000275**
O-ring 4		**3000342**	**3000342**	**3000342**	**3000342**	**3000342**	**3000342**



Mounting body (Accessory)



Mounting body complete (Accessory)

In combination with mounting bodies, the threaded-body work supports become individual components ready for installation.
For pipe connection, there are connecting threads G 1/8 and M5 for hydraulics and venting.
A manifold-mounting connection with thrilled channels is also possible. For this purpose, the screw plugs in the manifold-mounting surface will be removed and the supplied O-rings inserted in the counterbores. The pipe connections remain closed. O-rings and screw plugs are included in the delivery.

Load force as a function of the operating pressure