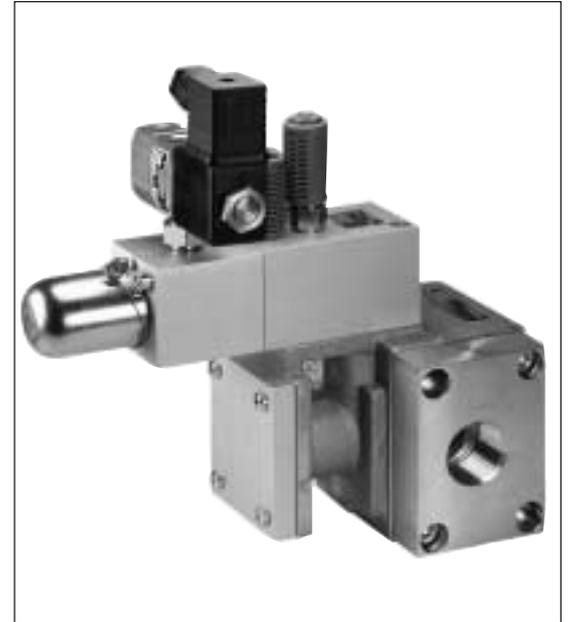


2/2 directional control valve, normally open or closed  
for soft clutch engagement

- Compact design
- Simple installation
- Reduction wear and tear
- Noise reduction

Soft start valve can be used for soft engagement of a pneumatically operated clutch on presses. It can be directly flanged on port 1 (P) of the safety valve **XS/XS<sub>z</sub> 32** and with an adapter plate on the **XS/XS<sub>z</sub> 50**. It has a interchangeable bypass orifice to adapt to individual operating conditions.



### Technical data

Operating pressure:  
2 to 8 bar

Fluid:

Filtered and lubricated air <sup>1)</sup>

Fluid temperature:

- 10 to + 40 °C <sup>2)</sup>

Ambient temperature:

- 10 to + 60 °C <sup>2)</sup>

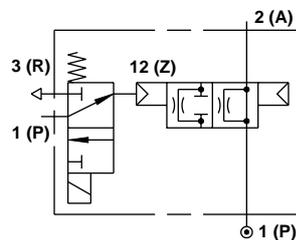
Materials: Housing: Aluminium alloy  
Seals: NBR (Perbunan)  
AU (Vulkolan)

### Ordering example:

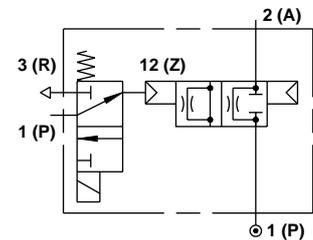
To order, quote part number, e.g.  
**1020113.0700** for nominal size 32 soft start valve for XS/XS<sub>z</sub> 32 valve, soft starting from 2 bar up.

### Caution:

For mounting soft start valve on a **XS/XS<sub>z</sub> 50** valve an adapter flange plate (Cat.-No. **0557164**) is necessary. It has to be ordered in addition to the soft start valve.



Symbol for Cat. No. **1020113**



Symbol for Cat. No. **1020141**

<sup>1)</sup> Oil recommendation: Shell Hydrol DO 32, ESSO Febis K 32 (as of July 1992) or comparable oils with DVI values < 8 (DIN 53521) and ISO viscosity class 32-46 (DIN 51519).

<sup>2)</sup> To secure the safety function of the valve at subzero temperatures, it is important that the air is dry enough to prevent an icing of the valve.



**General information**

Nominal size (bar)	Operating pressure (bar)		Control pressure (bar)		Weight (kg)	Cat. no.		Notes	Voltage
	min.	max.	min.	max.		Valve	Solenoid		
32	2	8	0,6	8	4,1	1020113. 0700		Valve for smooth starting from 2 bar up	DC
32	2	8	0,6	8	4,1	1020113. 3703		Valve for smooth starting from 0 2 up	AC
32	2	8	0,6	8	4,5	1020141. 0800		Valve for smooth starting from 0 to 2 bar	DC
32	2	8	0,6	8	4,5	1020141. 3803		Valve for smooth starting from 0 to 2 bar	AC

Adapter plate for flanged versions, Types XS/XS<sub>z</sub> 50, Cat. No. **0557164**

All solenoids are delivered **without** plugs. If you require plugs, please order them separately, Cat-No. **0570275**.

**Advantages of this control are:**

- Soft application of the clutch disc, thus reducing the noise
- Controlled torque transmission reducing clutch wear and tear
- Due to pressure control, no change in the performance characteristic caused by clutch wear and tear
- No need to harmonize clutch volume and volume of pipe lines between clutch and valve
- No pipe work due to flanged design
- Easy to handle
- Due to pressure adjustment, suited for all clutch types
- No changes by fluctuations of operating pressure
- The solenoid valve M1 allows a setup operation of the press.

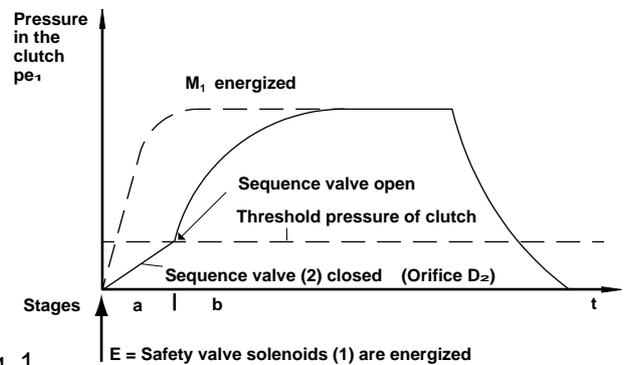


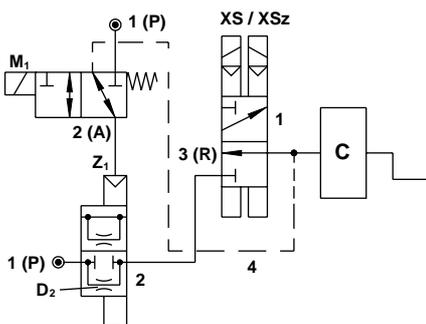
Fig. 1

**Threshold pressure of clutch from 0 to 2 bar**

As shown in Fig. 1 the clutch (C) is vented via safety valve (1). Pressure supply via filter, lubricator and the 2/2 control valve (2). However, the clutch is shut off by the safety valve (1). As soon as the solenoids of the safety valve (1) are energized, the clutch is pressurized in following two stages:

- The closed 2/2 directional control valve causes slow pressure build-up in the clutch via orifice D<sub>2</sub>, to a level where the acceleration phase between flywheel and drive shaft is reached (clutch closes).
- Via line 4 the 2/2 directional control valve (2) is switched to the open position initiating a rapid pressure build-up. The clutch (C) exhaust through the safety valve (1) as soon as safety valve solenoids are de-energized the 2/2 directional control valve (2) is switched to closed position. The 3/2 solenoid valve (M<sub>1</sub>) allows a setup operation of the press: after switching the solenoid valve (M<sub>1</sub>) and the safety valve (1), pressure will build-up at port 2(A) from the safety valve (1). This operation will cancel the soft engagement function of the soft start valve.

**Threshold pressure of clutch from 0 to 2 bar**  
**Switching diagram and characteristic curve for pressure build-up**





**Threshold pressure of clutch from 2 bar up**  
**Switching diagram and characteristic curve for pressure build-up**

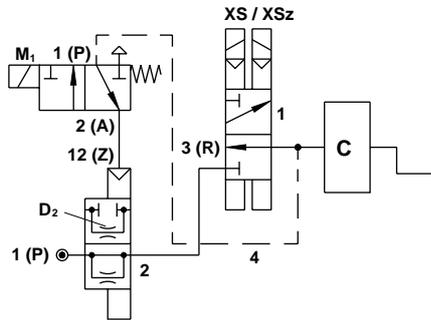
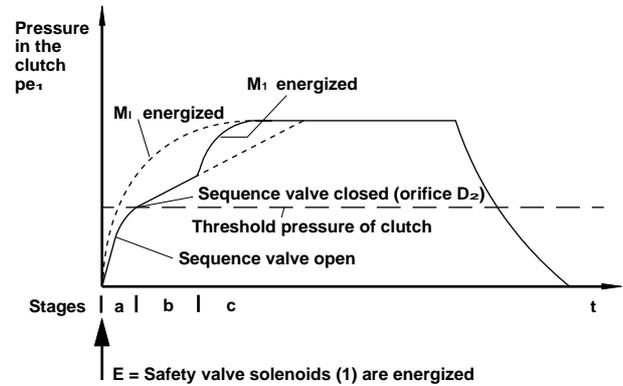


Fig. 2



As shown in Fig. 2 the clutch (C) is vented via safety valve (1). Pressure supply via filter, lubricator and the 2/2 directional control valve (2). However, the clutch is shut off by press safety valve (1).

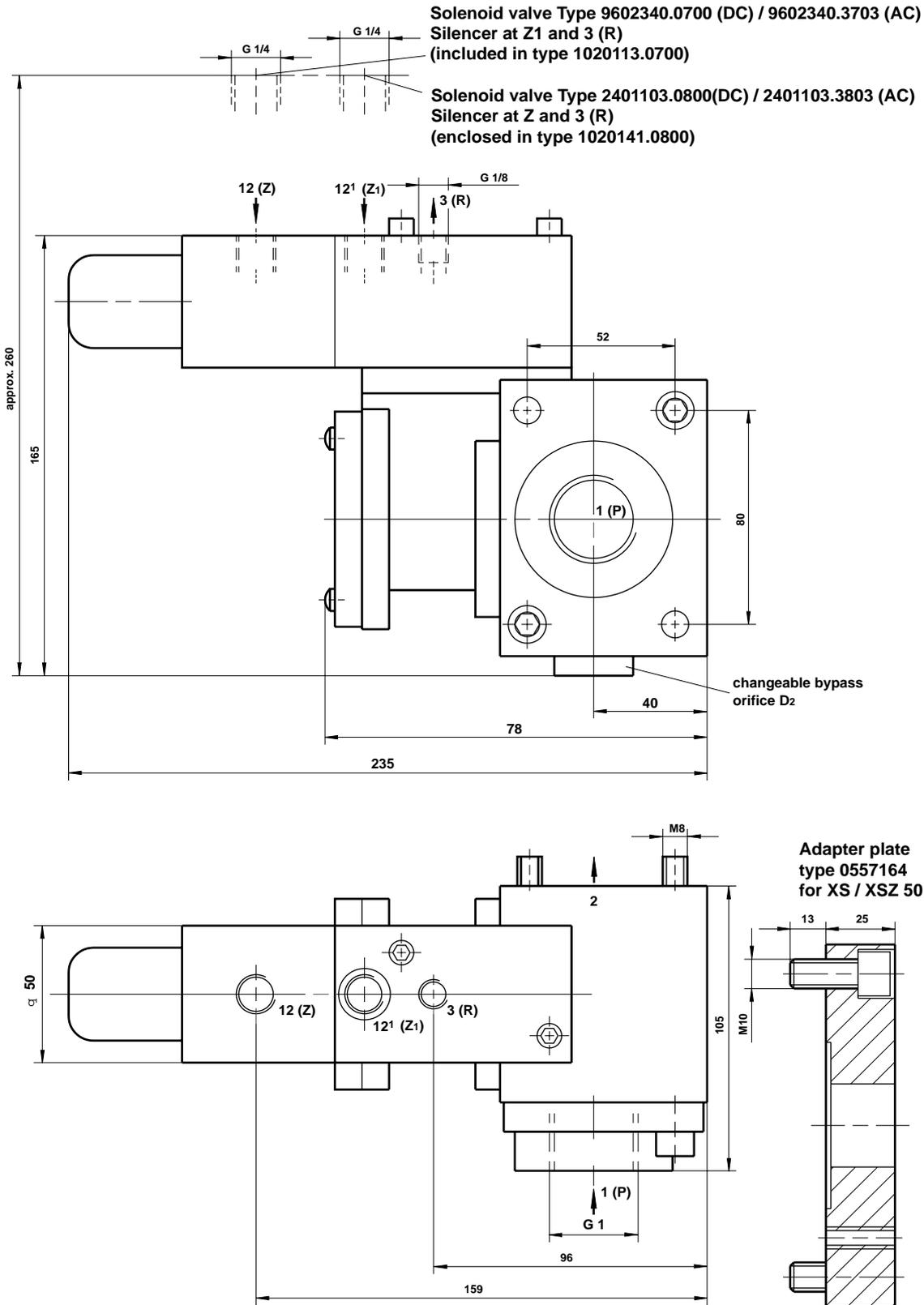
As soon as the solenoids of the safety valve (1) are energized, the clutch is pressurized in three stages:

**a)** Fully open, the 2/2 directional control valve (2) causes a quick pressure build-up to a level where engagement pressure of the clutch is reached. From this pressure level, the 2/2 directional control valve (2) is closed through line 4.

**b)** Further pressure build-up via orifice D<sub>2</sub> can be controlled as the orifice diameter determines the acceleration period between flywheel and driving shaft.

**c)** After acceleration phase, M<sub>1</sub> is energized, and the 2/2 directional control valve (2) opens. Pressure in the clutch quickly raises to a pre-set value. Torque transmission from the flywheel to the crank shaft of the press is assured.

By de-energizing the solenoid of the safety valve (1), the clutch is vented; the 2/2 directional control valve (2) remains in open position. The 3/2 solenoid valve (M<sub>1</sub>) allows a setup operation of the press: after switching the solenoid valve (M<sub>1</sub>) and the safety valve (1), pressure will build-up in the clutch. This operation will cancel the soft engagement function of the soft start valve.



A suitable air treatment unit (dehydration, filtration, lubrication) must be connected upstream of pressure port P. Lubrication can be omitted if the connected consuming device and all additional equipment is suited for oil-free operation (see page 1). Degree of filtration: 25 µm.

It is the responsibility of the purchaser and/or installer of the Norgren-Herion safety valves to make sure that the valve and all other components comply with all relevant national regulations and the specifications of the local safety associations.

The valve should be checked at intervals depending on the loads to which it is subjected, at least, however, once a year. The relevant tests must be carried out according to the corresponding operation and maintenance instructions of the unit and the local safety regulations. In case of malfunctions the unit has to be tested and/or replaced immediately.

For information on installation, operation and maintenance of the damping modules please see maintenance manual no. 5.4.326.

**All liability is denied for unauthorised modification of the units, installation or usage not in accordance with the manual, the local safety requirements or the principles of EN 692 and EN 954-1.**