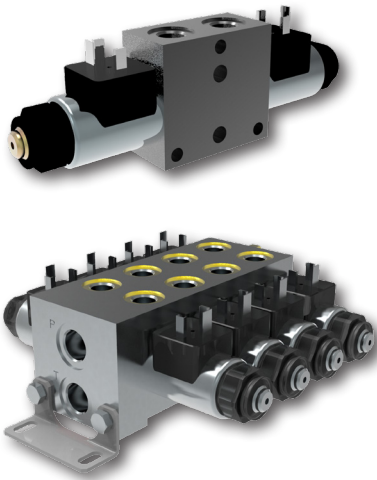


4/2 and 4/3 Directional Control Valve, Solenoid Operated, Bankable

**RPEK1-03**

Size 03 •  $Q_{max}$  20 l/min (5 GPM) •  $p_{max}$  250 bar (3600 PSI)

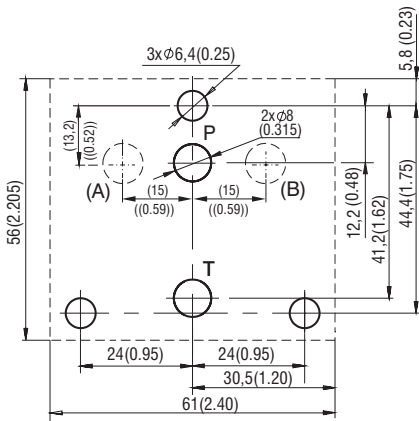


**Technical Features**

- › Direct acting, directional control valve with bankable mounting interface
- › Designed to be assembled in series or parallel, mounting up to 8 body modules
- › High transmitted hydraulic power up to 250 bar, optimized design to minimize the pressure drop
- › Housing with three chambers for production cost savings
- › The valve is available with interchangeable DC solenoids
- › Wide range of solenoid electrical terminal versions available
- › Wide range of interchangeable spools and manual overrides available
- › Suitable for compact applications in the mobile and mini-power pack industries
- › Space and cost saving! With optional end valves
- › No need for bar manifold to construct complex circuit assemblies from stock
- › In the standard version, the valve housing is phosphated for basic surface corrosion protection and as preparation for painting. Steel parts are zinc-coated for 240 h salt spray protection acc. to ISO 9227. Enhanced surface protection for mobile sector available for the valve housing and steel parts (ISO 9227, 520 h salt spray)

**Technical Data**

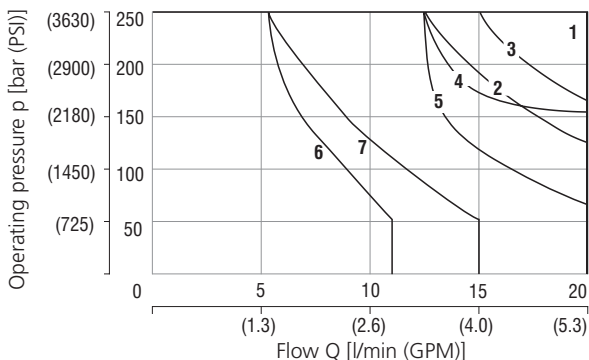
|   |                          |                                   |             |
|---|--------------------------|-----------------------------------|-------------|
| Valve size  | 03                       |                                   |             |
| Max. flow   | l/min (GPM)              | 20 (5.3)                          |             |
| Max. operating pressure at port P, A, B               | bar (PSI)                | 250 (3630)                        |             |
| Max. operating pressure at port T                     | bar (PSI)                | 210 (3050)                        |             |
| Fluid temperature range (NBR)                         | °C (°F)                  | -30 ... +80 (-22 ... +176)        |             |
| Fluid temperature range (FPM)                         | °C (°F)                  | -20 ... +80 (-4 ... +176)         |             |
| Ambient temperature range                             | °C (°F)                  | -30 ... +50 (-22 ... +122)        |             |
| Supply voltage tolerance                              | %                        | DC: ±10                           |             |
| Max. switching frequency                              | 1/h                      | 15 000                            |             |
| Switching time at $v=32$ mm <sup>2</sup> /s (156 SUS) | ON                       | ms                                | 30 ... 50   |
|   | OFF                      | ms                                | 30 ... 50   |
| Weight  | - valve with 1 solenoid  | kg (lbs)                          | 0.90 (1.98) |
|   | - valve with 2 solenoids |                                   | 1.05 (2.32) |
|   | Datasheet                | Type                              |             |
| General information                                   | GI_0060                  | Products and operating conditions |             |
| Coil types / connectors                               | C_8007 / K_8008          | C14B* / K*                        |             |
| Mounting interface                                    | SMT_0019                 | Size 03                           |             |
| Spare parts   | SP_8010                  |                                   |             |



**Characteristics** measured at  $v = 32$  mm<sup>2</sup>/s (156 SUS)

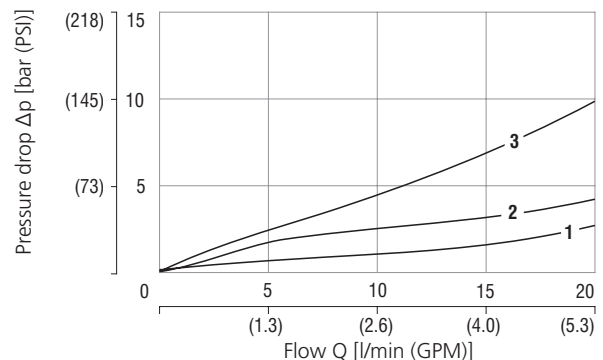
**Operating limits**

Operating limits for maximum hydraulic power at rated temperature and supplied with voltage equal to 90 % of the nominal value



| Spool symbol       |   |
|--------------------|---|
| Z11, Z51, R11, P11 | 1 |
| C11, C51, X11      | 2 |
| H11, H51           | 3 |
| Y11, Y51           | 4 |
| R21                | 5 |
| A51, Y82           | 6 |
| Z81                | 7 |

**Pressure drop related to flow rate**



| Spool symbol  | P-A | P-B | A-T | B-T | P-T |
|---------------|-----|-----|-----|-----|-----|
| Z11, Y11, P11 | 1   | 1   | 1   | 1   |     |
| R11, R21, X11 | 2   | 2   | 2   | 2   |     |
| Y51, Z51      |     | 1   | 1   |     |     |
| C11           | 3   | 3   | 3   | 3   | 2   |
| H11, H51      | 1   | 1   | 1   | 1   | 2   |
| C51           | 3   |     |     | 3   | 2   |
| A51           | 2   | 2   |     |     |     |
| X11           | 2   | 2   | 2   | 2   |     |
| Y82           | 2   | 2   | 1   | 3   |     |
| Z81           |     |     | 1   | 2   |     |

For operating limits under conditions other than shown consult our technical department. Admissible operating limits may be considerably lower with only one direction of flow (A or B plugged or without flow).

**Ordering Code**

RPEK1-03 [ ] [ ] [ ] / [ ] [ ] [ ] [ ] - [ ]

**4/2 and 4/3 directional control valve, solenoid operated, bankable**

**Valve size**

**Type of connection**

thread A, B - G1/4  
thread A, B SAE6 - 9/16-18UNF  
stackable

G  
S  
O

**Number of valve positions**

two positions 2  
three positions 3

**Spool symbols**

see the table of "Spool Symbols"

**Rated supply voltage of solenoids (at the coil terminal)**

12 V DC / 1.83 A 01200  
24 V DC / 0.92 A 02400

**Connector**

EN 175301-803-A  
E1 with quenching diode  
AMP Junior Timer - axial direction (2 pins; male)  
E3A with quenching diode  
Deutsch DT04-2P - axial direction (2 pins; male)  
E12A with quenching diode

E1  
E2  
E3A  
E4A  
E12A  
E13A

**No designation**

A zinc-coated (ZnCr-3), ISO 9227 (240 h)  
B zinc-coated (ZnNi), ISO 9227 (520 h)

**Surface treatment**

standard

**No designation**

V

**Seals**

NBR  
FPM (Viton)

**Model**

**No designation** standard, P, T through ports, without ports A1, B1  
**P1** P, T through ports, A1, B1 side ports, all ports sealed  
**P2** P, T through ports, A1, B1 side ports inverted (not sealed)  
**Z1** end valve, one side P, T sealed ports  
**Z2** end valve, one side P, T ports inverted (not sealed)  
**Z3** end valve, one side P, T ports, A1, B1 side ports, all ports not sealed  
**Z4** end valve, one side P, T, A1, B1 side ports inverted, all ports not sealed

**Manual override**

**No designation** standard  
**N2** protected with rubber boot  
**N5** socket head screw

- For directional valves with two solenoids, one solenoid must be de-energized before the other solenoid can be energized.
- For other solenoid voltages see datasheet C\_8007.
- The solenoid operated valves are delivered without connectors. For connectors version see datasheet K\_8008.
- Besides the commonly used valve versions shown other special models are available. Contact our technical support for their identification, feasibility and operating limits.

**Spool Symbols**

| Type | Symbol | Interposition | Type | Symbol | Interposition | Type | Symbol | Interposition |
|------|--------|---------------|------|--------|---------------|------|--------|---------------|
| Z11  |        |               | R11  |        |               | H51  |        |               |
| C11  |        |               | R21  |        |               | Z51  |        |               |
| H11  |        |               | A51  |        |               | Z11  |        |               |
| P11  |        |               | Y51  |        |               | X11  |        |               |
| Y11  |        |               | C51  |        |               | C11  |        |               |
| Y82  |        |               | Z81  |        |               | Y11  |        |               |

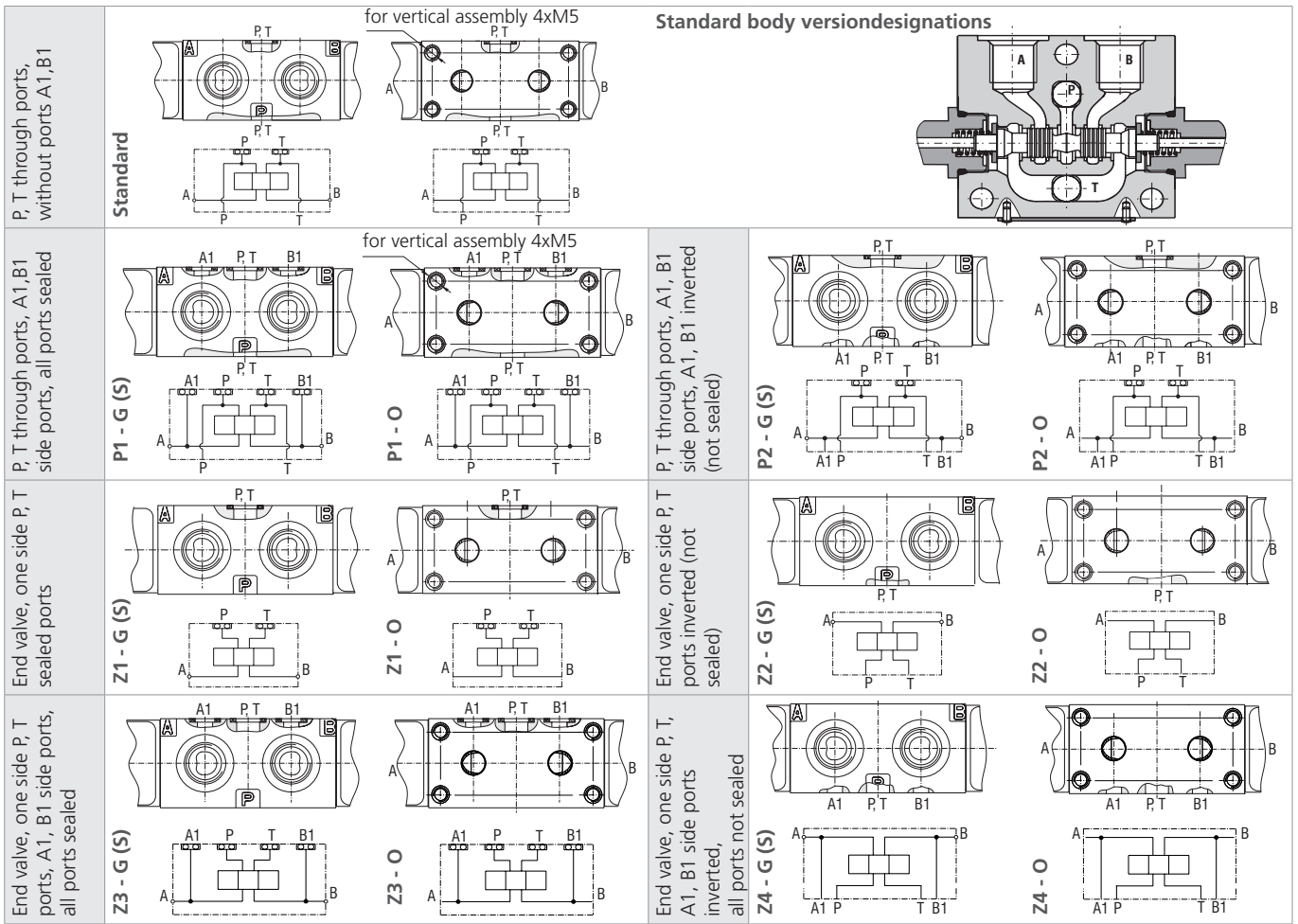
**Solenoid Coil** in millimeters (inches)

| E1, E2 - Protection degree IP65 | E3A, E4A - Protection degree IP67 | E12A, E13A - Protection degree IP67 / IP69 |  |
|---------------------------------|-----------------------------------|--|--|
|                                 |                                   |  | The specified IP rating applies only in the case of correctly connected connectors (male + female) with the corresponding IP rating. |

**Manual Override** in millimeters (inches)

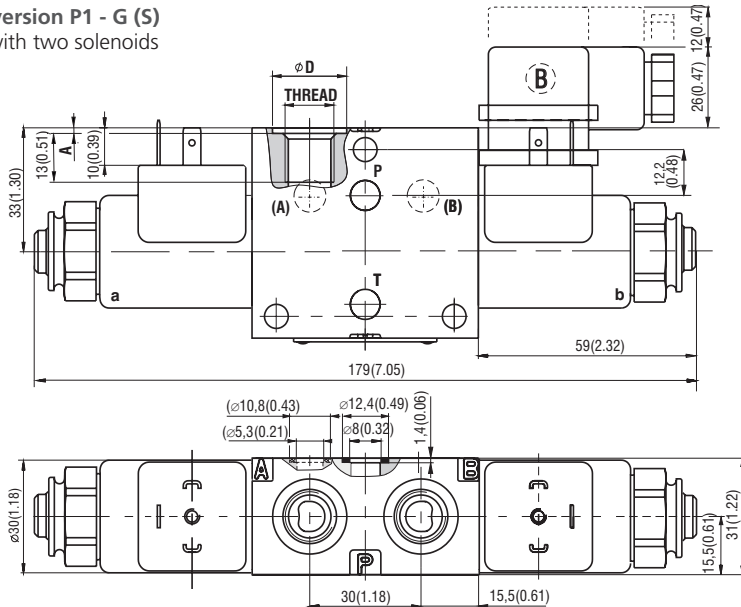
| No designation - standard | N2- protected with rubber boot | N5 - socket head screw 3 |  |
|---------------------------|--------------------------------|--------------------------|--|
|                           |                                |                          | In case of solenoid malfunction or power failure, the spool of the valve can be shifted by manual override as long as the pressure in port T does not exceed 25 bar (363 PSI). For alternative manual overrides contact our technical support. |

Design Forms G (S), O in millimeters (inches)

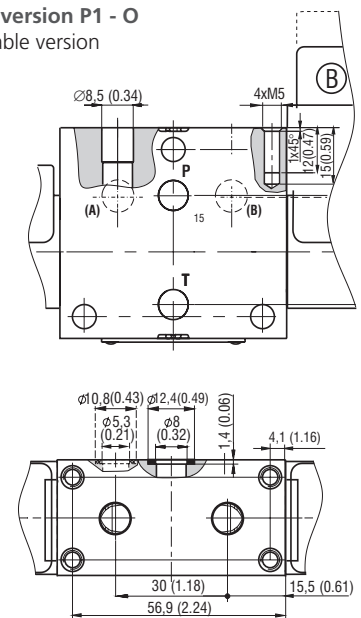


Dimensions in millimeters (inches)

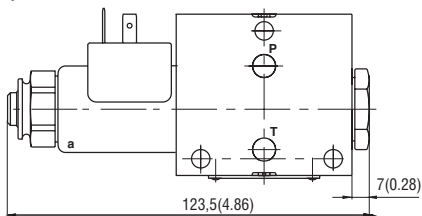
Body version P1 - G (S)  
Valve with two solenoids



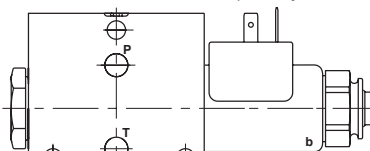
Body version P1 - O  
Stackable version



Valve with one solenoid „a“  
Spool symbols R11, R21, Y51, C51, Z51

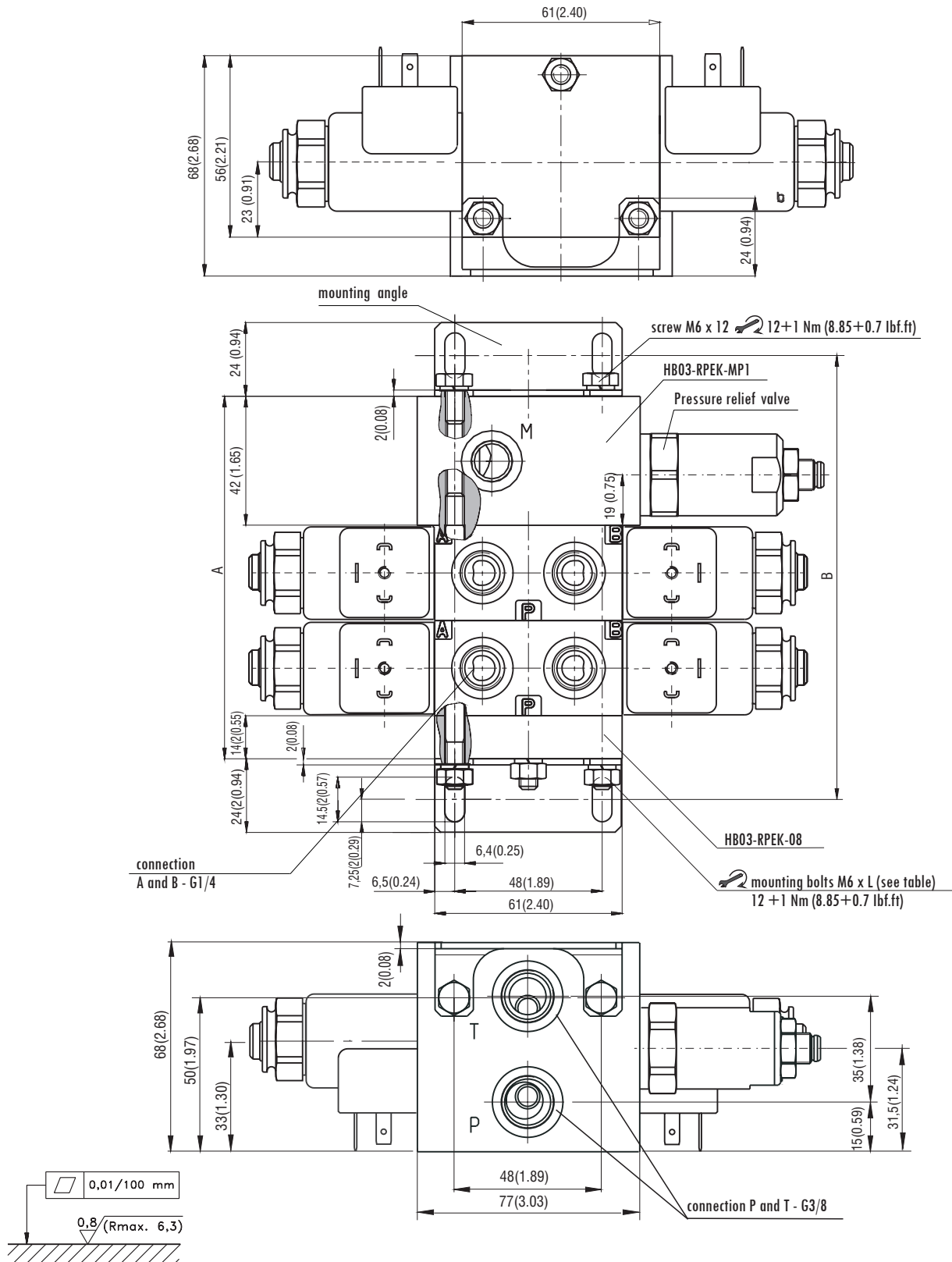


Valve with one solenoid „b“  
Spool symbols H11



|             | G         | S               |
|-------------|-----------|-----------------|
| THREAD      | G1/4      | SAE6-9/16-18UNF |
| ∅ D [mm]    | 20.9H13   | 25+0.5          |
| ∅ D [in]    | 0.823     | 0.984+0.02      |
| A [mm (in)] | 1 (0.039) | 0.5 (0.020)     |

VERSION - valve with inlet block and pressure relief valve see datasheet 4057 - RPEK1-03/B



Required surface quality of the counterpart

| Dimensions mm (inches) |            |            |            |            |            |             |             |             |
|------------------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| Number of sections     | 1          | 2          | 3          | 4          | 5          | 6           | 7           | 8           |
| Dimension A            | 87 (3.43)  | 118 (4.65) | 149 (5.87) | 180 (7.09) | 211 (8.31) | 242 (9.53)  | 273 (10.75) | 304 (11.97) |
| Dimension B            | 114 (4.49) | 145 (5.71) | 176 (6.93) | 207 (8.15) | 238 (9.37) | 269 (10.59) | 300 (11.81) | 331 (13.03) |
| Dimension L            | 60 (2.36)  | 100 (3.94) | 133 (5.24) | 163 (6.42) | 194 (7.64) | 224 (8.82)  | 256 (10.08) | 287 (11.30) |